6d.

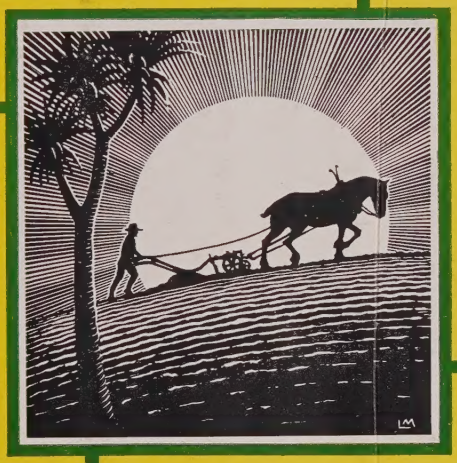
THE Journal OF AGRICULTURE

VOL. 58
No. 4

APRIL

1939

IMPERIAL MYCOLOGICAL
9 JUNE 1939
INSTITUTE



Issued by
THE NEW ZEALAND
DEPARTMENT OF AGRICULTURE

Mannings New Vaccine

For Mammitis in Dairy Cows

(Prepared in our own Bacteriological Laboratory)

READ WHAT USERS SAY:

Whitehall.

Messrs. Mannings Ltd.

DEAR SIRS,—

As the milking season is about finished you will no doubt be interested to know how the cows are after your treatment. Out of 56 cows milked this season I had 12 affected with mammitis at various times, and I am very pleased to say that 11 of them have gone out *sound* in every *quarter* and only went off their milk in the affected quarter for a few days. The other cow Bluie was the first one you treated, and as she had been bad for quite a while before you started on her, and although very little milk ever came back to that quarter it cleared right up in the end and I have every confidence that she will come in sound next season. I find that a few days treatment puts them all right. I don't suppose that I have lost more than 12 or 15 gallons of milk from the 11 cows for the time they were bad. I find it only takes three or four days to put them right if taken in time. and I will take the first opportunity of calling on you to arrange for next season's treatment as I cannot afford to take the risk.

Yours faithfully,
C. J. MACKIE.

Walton.

Messrs. Mannings Ltd., Hamilton.

DEAR SIRS,—

I regret the delay in replying to your letter *re* vaccine inoculation for cows when drying off. I thank you very much for you advice to do them at this time of the season, because I honestly think that your instructions are on very sound lines. I will be very grateful if you will please send vaccine along any time now. As you are quite aware, I have treated my herd with your vaccine and cooling drench for two seasons, with gratifving results indeed.

I milked 101 cows last season and 106 this season. I have not sold one cow through udder troubles in two years, thanks to your vaccine and instructions how to use it.

I am, &c.,
S. J. LOCK.

Waharoa.

Messrs. Mannings Ltd., Hamilton.

DEAR SIRS.—

Commencing at the beginning of last season I have used your vaccine continually with success. I can honestly say that last season was the first season for at least eight years that it was not necessary to cull out a number of cows as the result of mammitis. I always give an inoculation to any animal showing any sign of swelling or hardness during milking, and at the present time every cow is clean. I must say that if the treatment is used in the earliest stages of the disease much time and trouble can be saved. I must add here that you have always given me service and attention most promptly and willingly. When treating my cows with vaccine a certain amount of patience is necessary, as I find some cases respond immediately after one inoculation, while other cases require several inoculations before any change is noticed. Sometimes it is necessary to double the dose at each treatment.

You are at liberty to use this letter as a testimonial if it is to be to your advantage. Wishing you continued success.

I remain, yours faithfully,
R. L. HETHERINGTON

Walton.

Messrs, Mannings Ltd., Hamilton.

DEAR SIRS,—

This is the second season I am using your vaccine, and I think the results may interest you. My herd contracted mammitis—no hard udders, just thick milk with quarters drying up, in the 1930–31 season. In the 1932–33 season I got you to test and inoculate my cows. I am glad to say that the herd is now practically clear, exceptions being a few of the older cows which show slight infection under the microscope but which is invisible to my milkers. Of course the instructions *re* order of milking and inoculating must be strictly adhered to, to get results.

The following figures may interest you: In the 1929–30 season before the herd contracted mammitis my herd was averaging just 300 lb. of fat per cow. In the two following seasons through mammitis my returns dropped to 230 lb. of fat per cow. In the 1931–32 season, after using your vaccine and cleaning up the herd considerably my returns came up to 270 lb. of fat per cow. This season not yet finished, as before stated, the herd is quite clean—we have no dirty milk and have not lost a quarter, and I anticipate my returns will be well up on the 300 lb. mark.

Thanking you for past services and wishing you every success.

I am, yours faithfully,
W. FINDLAY.

R.M.D. Hunga Hunga, Waharoa.
Mannings Pharmacies, Ltd.,
Hamilton.

DEAR SIRS,—

I have used your vaccine on my herd with, I must say, very satisfactory results, even on very bad and deep-rooted cases, by noting each particular case whether severe or slight and inoculating accordingly. I can and always do honestly recommend your vaccine to all that I can. I write this note in appreciation of the excellent services rendered.

I am, &c.,
ERNEST BOWEN.

SEND IN COUPON BELOW.

MANNINGS LTD., Box 300, HAMILTON.

Please send me, without obligation, Free 32-page Catalogue, and full particulars of your New Vaccine.

Name : .....

Address : .....

.....

The New Zealand Journal of Agriculture

Published by direction of the Hon. W. LEE MARTIN, Minister of Agriculture.

Vol. 58. WELLINGTON, 20th APRIL, 1939. No. 4.

Guarantee Your Autumn-sown Pastures.

Only Certified Seed Will Assure Persistent and Productive Plants.

R. McGILLIVRAY, Fields Superintendent, Christchurch.

THERE are indications in many districts of a very extensive sowing down of pastures this autumn, and it is important that farmers should know something about the strain in the grasses and clovers now available as constituents of their new grasslands. It should be pointed out that farmers should use only seeds with some guarantee of quality behind them, and that this guarantee can be obtained only when certified seeds are used.

There are good strains and poor strains of pasture plants, and the Department of Agriculture aims to bring before farmers the fact that the good strains will give good results, and in this way prove in the long-run much more profitable than the poor strains.

Many cases could be quoted where farmers in the past have purchased seeds showing good colour, plumpness, and high germination, and yet the pastures sown with this seed have been most disappointing because the plants that produced the seed were of poor strain, and their progeny was also poor.

In sowing autumn pastures farmers should purchase only certified seed in order to obtain persistent and productive plants. Such seeds are the best obtainable, and can be depended upon to give satisfactory results.

Pastures sown with this seed could have only a short life, with relatively low production.

Inquiries are constantly being received from various sources regarding strain in our grasses and clovers, and an endeavour will be made to deal with some of the more important of these.

Perennial Rye-grass.

A great deal has been heard recently about the different strains of perennial rye-grass. As New Zealand grassland farmers depend largely on this grass it can be seen immediately that the question of the strain of this grass is of vital importance. Many strains of perennial rye-grass on the market are of an undesirable type in so far as permanency and production are concerned. These types are not of the true perennial type, but are what may be called pseudo or false perennial rye-grass. Some of these types are not so persistent as good Italian rye-grass, and in many cases farmers have suffered serious loss because of the failure in the second year of pastures sown with such rye-grass.

Investigations made some years ago showed that true perennial rye-grass was obtainable from certain parts of New Zealand, and in due course these true types were exploited under a scheme of certification. In a few years large quantities of seed of a desirable strain were made available to farmers, with the result that in almost all the farming districts the true type of perennial rye-grass is rapidly ousting the poor types.

The true perennial rye-grass is deep-green in colour, and in most situations remains green throughout the winter period. The poor type is generally

lighter in colour, and does not give any feed during the winter, being practically dormant from May until September.

To be of the utmost usefulness to farmers rye-grass must persist and form a sward covering the ground. A type that is weak and short-lived will never form a sward, with the result that weeds will take up the running and the pasture will consist of flat weeds instead of grass. The true perennial rye-grass is a very hardy plant. It will persist for years even under very hard conditions, and any rise in fertility will find it there ready to come away.

An investigation by Mr. E. Bruce Levy, of Palmerston North, showed that there were marked differences between individual plants within a line of perennial rye-grass. This is also the case in various other pasture plants. When the rye-grass plants were grown spaced in such a way that each individual had sufficient room to develop unhampered by competition the growth form varied from very lax and spindly to very dense and bushy plants. The farmer produced small amounts of foliage and much stem, while the latter type produced more growth and usually gave a much higher total yield, spread over a longer growing-period.

The lax, spindly plants were usually short-lived, while the dense leafy types were more permanent and therefore more adapted to permanent pasture. In the breeding and selection of rye-grass the pasture form in the shape of the dense leafy growing types would be selected.

Cocksfoot.

Cocksfoot occupies a very important place in agriculture in New Zealand. We have two main types on the market —namely, New Zealand and Danish. These two types differ very much not only in appearance but also in longevity and production under pasture management. The Danish cocksfoot is broader in stem and leaf than the New Zealand type, which is much more dense in growth and is a better all-round pasture plant.

A certain amount of work has been done in the investigation of strains of New Zealand cocksfoot. Various selections have been made, and some of the selected strains are now on the market. Cocksfoot has been sown extensively in some districts, and its summer and autumn production is an important feature of its performances.

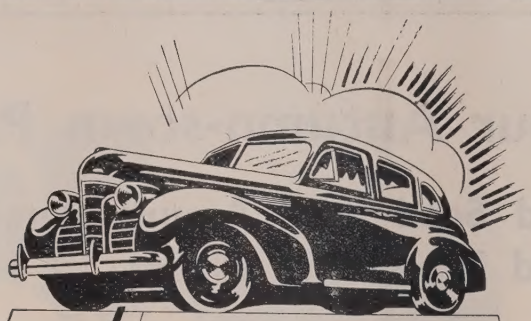
White Clover.

Persistent and non-persistent strains have come to light in the course of the strain investigation of white clover. There is a more or less annual type found in Europe and generally known as "Dutch white clover," but there also exists a true perennial type in parts of England, and the Kentish wild white clover is a strain of wonderful persistency.

We have in New Zealand a white-clover strain which is probably the best in the world when everything is taken into consideration. It is most persistent, is a very vigorous grower, and shows a wonderfully rapid recovery after being grazed down. It also appears to be hardier than the other types of white clover. This type is now much in demand, and is a feature of the seed-certification scheme of the Department of Agriculture.

Red Clover.

Red clover occupies a very important place in farming in many countries, including New Zealand. Variations in



When you buy A NEW CAR

When you buy a new car, you select it with great caution. You find out about its performance, its acceleration and speed, the engine power, the brakes and the chassis. You consider each in turn and, after having weighed the pros and cons, you decide on the best, for your purpose, that you can afford.

And isn't it advisable for you to exercise the same care and go to the same trouble when considering your crop? The choice of pickle particularly is of the greatest importance. You must use the best pickle if you are to secure the best results.

By pickling all your seed with 'CERESAN', you will make sure that your crop is protected from smut and other diseases. 'CERESAN' will increase your yields and the quality of your grain.

For greater profits pickle with 'CERESAN'.

'CERESAN'
BAYER'S DRY SEED DRESSING
(U.T. 1875 a) TRADE MARK

BAYER

130 BRITISH MADE

CHEAPER FIRE INSURANCE!

DIVISION OF PROFITS TO FIRE POLICYHOLDERS

Applicable to all policies falling due during twelve months commencing 1st December, 1938.

STATE FIRE
INSURANCE OFFICE
Support your own Office.

Fig. 1.—White-clover trials at end of three years, showing the standard set in regard to New Zealand certified white clover. Photo taken 23rd September, 1932. Front left: New Zealand No. 1 certified mother-seed standard. Right: imported Dutch type, reject class. Back (left to right): (*a*) Part of plot only showing ordinary New Zealand white, reject class; (*b*) New Zealand No. 2 dominant; certified permanent-pasture standard; (*c*) New Zealand No. 1 dominant; certified mother-seed standard; (*d*) New Zealand ordinary, reject class.

[*E. Bruce Levy photo.*

Fig. 2.—New Zealand certified perennial rye-grass on left, and a non-certified false perennial rye-grass on the right. Plots sown 16th October, 1931, and photographed 25th May, 1932, following a dry spring and summer. The false perennial rye-grass is largely replaced by volunteer white clover.

[*E. Bruce Levy photo.*

Fig. 3.—New Zealand certified cocksfoot (rows left and right) compared with Danish cocksfoot (middle row), showing the more leafy nature of the former and the scant leaf and much seed stalk of the latter. At the time the photo was taken, after first frost in New Zealand, the Danish type showed early winter burn.

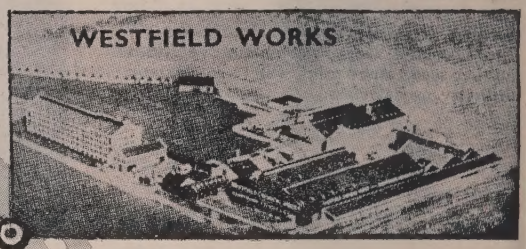
[*E. Bruce Levy photo.*

K. P.

HIGH-GRADE SUPER

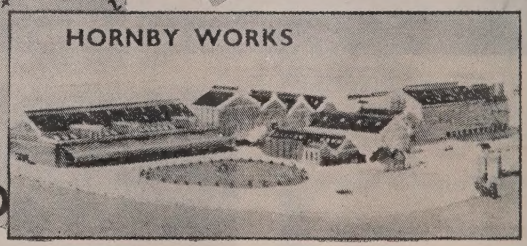
AND OTHER FERTILIZERS.

Foremost in Quality



K·P.
FOR QUALITY
EFFICIENCY
& SERVICE

and Quantity!



MANUFACTURERS:—

KEMPTHORNE PROSSER & CO'S. N.Z. DRUG CO., LTD.

HEAD OFFICE: DUNEDIN. N.Z.

Fig. 4.—New Zealand broad red clover in full flower. Compare with Montgomery red in Fig. 5, which, up to the time of the photo, had identically the same treatment.

[*E. Bruce Levy photo.*

Fig. 5.—Montgomery red clover growing in New Zealand. The type is essentially different from the broad red. It is densed crowned, multitillered, and late flowering (compare with Fig. 4). These characteristics hold in New Zealand just as they do in Britain.

[*E. Bruce Levy photo.*

type are very noticeable, and investigations have indicated many groups, but the principal ones are the broad red clover type, Montgomeryshire type, and Wild red type.

Broad red is the shortest-lived of these types, and in Europe is now classed as being more or less an annual plant. This type has large and broad leaves when the plant is young. In New Zealand broad red clover lasts longer than it does in Europe, but under grazing there is usually not much left after the second season. On suitable soils with top-dressing and haying it may persist for quite a number of years, but in most cases its persistence is due to reseeding.

The Montgomeryshire red clover is darker green in colour, and is later than the broad red clover. The crown is much lower, and it is not readily injured by grazing. It will persist for many years and is very suitable for pastures, but one would rather have the broad red type for hay, as it is earlier and more erect in habit of growth.

The late red clover is rather slow in growth for the first season, but produces good growth the second year. It is late in coming away, but is a good, dense plant and remains in good condition for a number of years in a pasture.

With the exception of those areas sown with seed of the Montgomeryshire strain, all New Zealand red clover or cow-grass belongs to the broad red group. It has been proved to be an excellent type of broad red, but, like other clovers of this type, its life as a pasture plant is short. It is advisable for farmers to endeavour to get supplies of Montgomeryshire red clover for pastures. There is no doubt that the demand for seed of this type will be very great within the next few years

In order to obtain persistent and productive plants for their pastures farmers should purchase only certified seed. Their requirements should be obtained through the firm with whom they do business, as practically all firms dealing with farmers now stock Government certified seeds. Such seeds are the best obtainable, and can be depended upon to give satisfactory results.

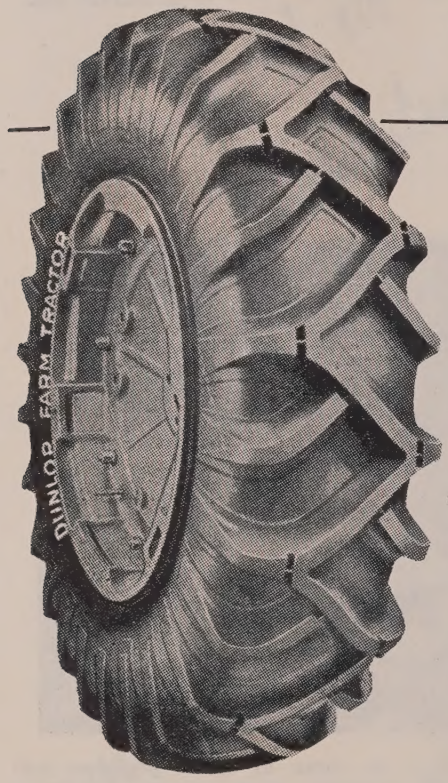
❖ ❖ ❖

KNAPSACK DISTRIBUTOR.

Try this guaranteed manure distributor at our expense. Twenty acres a day—any country. Saves time, labour, and money. Price, 25/-. Illustrated pamphlet and money-back guarantee on request.

PARKER'S KNAPSACK DISTRIBUTORS, TAUPIRI.

Farming is so much
EASIER with
DUNLOP
TYRES



Dunlop offers a full range of tyres for every farm vehicle—from the largest tractor to small trolleys, hand carts or wheelbarrows. **And when you buy Dunlop tyres you not only "Buy British" but you also add your contribution to New Zealand's policy of reciprocal trading.**

YOU HAVE A CHOICE OF TWO TYPES OF TRACTOR TYRES

. . . and they sell at the same reasonable price. Each provides amazing pulling power in the toughest going. Each is built up to the standard for which Dunlop tractor tyres are famous. Farmers everywhere are converting iron rimmed tractors in favour of Dunlop tractor wheels and tyres. See your nearest Dunlop dealer and ask for a quotation.

Carts, wagons, and animal-drawn vehicles of all kinds are rapidly changing to Dunlop pneumatic equipment. These tyres allow easy transit over heavy ground; loads are carried silently and smoothly. Speed is increased and heavier loads may be carried without damage to roads or pastures. With these tyres *air instead of iron supports the load.*

Eventually, all wheelbarrows in use on farms or smaller properties will be pneumatically equipped. It costs very little to equip with Dunlop . . . the advantages are obvious.

DUNLOP

Make inquiries from your Dunlop dealer

DL. 25.

The Dairy Industry Act.

Obligations of the Dairy Farmer.

Contributed by the DAIRY DIVISION.

THE duties of the officers of the Dairy Division do not extend to the pastures, a sphere which is covered by the Fields Division, but wide experience of feed flavours has enabled them to co-operate with the latter in investigations carried out in this connection. From the milking-shed to the disposal of the finished product in the United Kingdom a supervision is exercised by the Dairy Division, and it is at this stage that the Farm Dairy Instructor begins his duties.

As indicated by his designation, the function of the Farm Dairy Instructor is to act as an adviser to the dairy-farmer and to endeavour to discover the cause of any defect which may be found in the milk or cream when it reaches the dairy factory. Apart from feed, these may be due to many causes, and in making his investigation the instructor will naturally pay attention first to the condition of the dairy.

The provision of an elaborate milking-shed and equipment does not ensure that the milk and cream produced in it will be of high-class quality. Human nature is such, however, that the work necessary to produce the best results is more likely to be carried out if the conveniences which make it easy to do so are provided. Some defects in construction and equipment and layout of farm dairies are so obvious that it has been thought necessary to deal with them in the Dairy Industry Act, 1908, and the various amendments which have been made to it from time to time. Abbreviations which follow give the meaning of some of the more important of these sections.

Dairy Defined.

Section 2 (*a*) and (*b*) defines "dairy" as meaning any place where milk is collected, separated, &c., any farm, milking yard, paddock, shed, &c., and any other place where cows from which the milk-supply of a dairy is obtained are depastured and kept.

It will thus be seen that the word "dairy" has a very wide application and covers the whole of the premises of a dairy factory or any farm supplying it.

Sections 6 and 7 deal with inspection of dairies; and the powers of the Inspector to deal with defects are as follows:—

Where an Inspector finds that a dairy is in an unclean or unwholesome condition he may require such defects to be remedied, &c., and may forbid the removal of any dairy-produce for such time as he thinks fit.

In this connection it should be noted that every officer of the Dairy Division is, when appointed, gazetted as an Inspector under the Act and exercises his powers as the result of that appointment. His right of entry to the dairy, including the farm, is safeguarded by section 5, under which he may at all reasonable times enter, inspect, and examine any dairy, any stock, utensil, machinery, &c., used in connection with a dairy, &c.

Section 10 further requires the owner to furnish any personal assistance to enable the Inspector to search for any source of contamination to which dairy-produce may be exposed.

An amendment and addition to section 6 which was made in 1926 provides for the approval by the Inspector of any structure or other thing situated in the neighbourhood of the dairy which may contaminate any dairy-produce produced in it.

Condemned Produce.

Section 8 provides that where an Inspector considers that any dairy-produce is

Tonic Trips For Fitness.

Ease for Mind and Body.

The leading authorities on fitness for body and mind say that timely relaxation is as important as proper exercise for that radiant health which assures joy of living.

•

The Railways Department offers the best possible opportunities for cheap week-end trips and other trips which help to ease the strain of modern life.

•

The care-free journey by rail helps anybody to make the best of a holiday.

Travel by Rail — and Relax.

unfit for human consumption, he shall by notice in writing given to the owner condemn such dairy-produce.

It will be noted that most of the sections here quoted give the Inspector a certain amount of discretion in dealing with them, and it seldom happens that the powers which they provide have to be used. For instance, it is seldom necessary to exercise the power to prevent the removal of any produce from the dairy as provided by section 7.

When such action is taken it is because all other means of obtaining the necessary improvements have been exhausted, and, even when taken, a first notice giving details of what is required is served on the owner. This notice allows a reasonable period for the improvements to be carried out, but when this is not done a second notice closing the dairy is served. This notice covers all dairy-produce, so that the owner can neither deliver his milk or cream to a manufacturing dairy nor make butter or cheese for sale until the notice is cancelled, which would be done as soon as the necessary work had been carried out.

Any officer taking such action is expected to so arrange his movements after doing so that he can immediately make an inspection on being notified by the owner that the work required is completed, and as each Farm Dairy Instructor is provided with a telephone no difficulty need arise in this respect.

A ruling has been given in these cases that if a can of milk or cream is placed on a stand for collection by a lorry before the Inspector has lifted the embargo on the dairy no responsibility for removal rests on the owner of the lorry, but action can, of course, be taken against the owner.

As a guide to the class of building which will be required under the 1926 amendment to section 6, plans of a walk-through milking-shed have been prepared by the Dairy Division and are issued free of charge to applicants. Certain clauses are also included in the Dairy-produce Regulations 1938 in order to draw attention to these points.

While the plan itself is not compulsory, the principles embodied in it must be included in any variation from it. For instance, it is not compulsory to build a walk-through shed, but it is compulsory to provide a draught-proof wall between the shed and the releaser-room.

The authority to condemn any dairy-produce provided in section 8 is further elaborated in Regulation 20, and will be dealt with at a later stage.

Diseased Stock.

Section 9 provides that diseased stock must be kept separate from healthy stock, that milk and cream from diseased stock must not be sold or used for food, and that persons suffering from contagious or infectious disease must be kept isolated.

Dealing with the surroundings of the dairy, section 12, as amended in 1926, provides that no person shall keep, house, or allow pigs to wander or be brought within 50 yards of any dairy or the open water-supply thereof; that any fowlhouse, manure-heap, cesspool, or closet must be 30 ft. away from any dairy or yard; and that open drainage from stock or pigs must not flow within 50 yards of a dairy or yard or of the open water-supply thereof.

VITULINE
MAKES ALL THE DIFFERENCE BETWEEN WEAKLY AND ROBUST CALVES.
Vituline is a Special Cow and Calf Drink —Recommended for Throat, Lung or Intestinal Worms, and is unexcelled for Coughing, Weakly and Scouring Calves. Unthrifty Calves take on a new lease of life after a dose or two of "Vituline."
Send Postal Note or Stamps for 1/- to Osmond & Sons (N.Z.), Ltd., Dept. No. 4, Knigge Ave., Wellington, for their instructive booklet—Health and Healing on the Farm. Please write name and address clearly.
Ask for
Osmonds'
VITULINE

Section 15 provides that no person shall sell or supply to a dairy or to any person for any purpose milk or cream which is tainted, or which is drawn from a cow which is suspected or known to be diseased or that has calved within four days before the day on which it was drawn.

It will be noted that sections 9, 12, and 15 are mandatory and prescribe the things which must not be done. In these instances the Inspector has no discretion allowed him.

The section most frequently broken is section 12, and the attention of dairy-farmers is especially drawn to prohibitions regarding the housing and wandering of pigs near a dairy and the disposal of drainage from these and other farm stock.

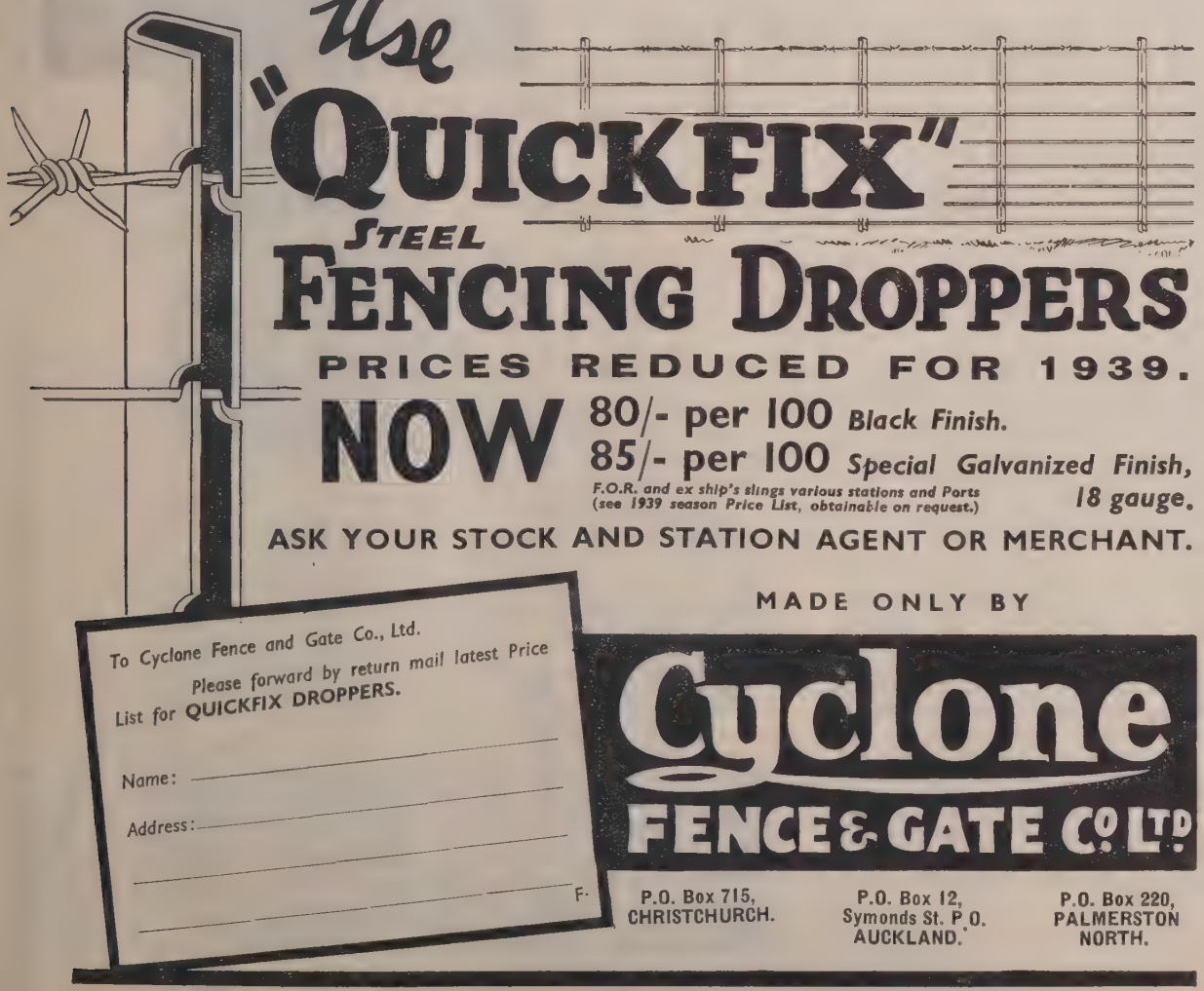
In section 15 the responsibility for the sale and delivery of tainted milk or cream to a manufacturing dairy or person is clearly placed on the supplier, but it could be argued that the manager of a factory at which it is accepted is liable by implication.

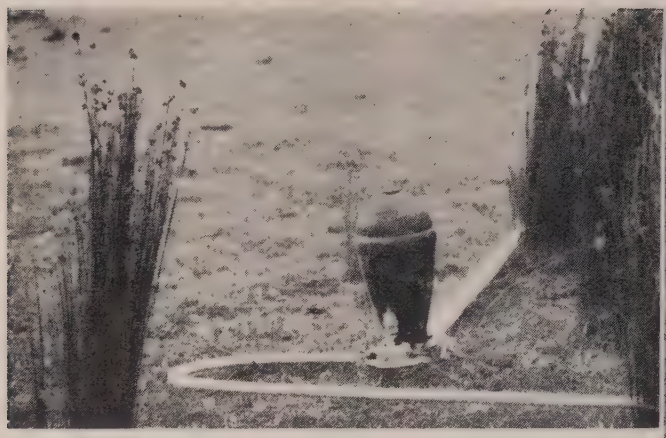
Authority for Regulations.

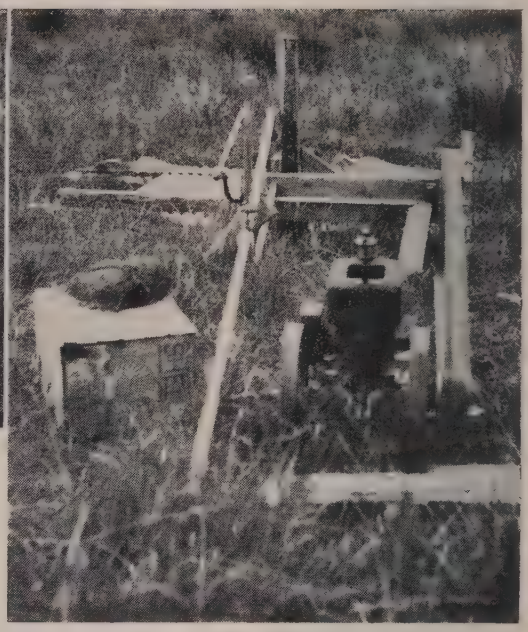
Subsection (*c*) of section 23 is the authority under which regulations are made covering the condition of the dairy and appliances, the installation of the milking plant, the provision of efficient supplies of hot and cold water, and everything having any connection with or likely to contaminate the milk or cream produced in it. It also covers many other points in connection with both supplying and manufacturing dairies.

While dealing with this subject, it may be well to draw attention to the fact that only matters which are considered to be of sufficient importance to warrant a special cover are included in an Act, which can only be altered or added to by Parliament.

Regulations can only be made under the authority which is provided in the Act—in this instance the Dairy Industry Act, 1908, section 23 of which contains seventeen subsections covering all phases of the industry and dealing with points having reference to production, manufacture, grading, and marketing of dairy-produce. These necessarily cover a very wide field, many of which are not so immediately the concern of the individual dairy-farmer. A regulation may be amended at any time by Order in Council, and a complete consolidation known as the Dairy-produce Regulations 1938, Serial No. 91, was gazetted on 1st August, 1938. Copies are obtainable from the Government Printer, Wellington, at a cost of 2s. 6d., plus 1d. postage, cash with order.


Use
"QUICKFIX"
STEEL
FENCING DROPPERS
PRICES REDUCED FOR 1939.
NOW 80/- per 100 Black Finish.
85/- per 100 Special Galvanized Finish, 18 gauge.
F.O.R. and ex ship's slings various stations and Ports (see 1939 season Price List, obtainable on request.)
ASK YOUR STOCK AND STATION AGENT OR MERCHANT.
MADE ONLY BY
To Cyclone Fence and Gate Co., Ltd.
Please forward by return mail latest Price List for QUICKFIX DROPPERS.
Name:
Address:
F.
Cyclone
FENCE & GATE Co. LTD
P.O. Box 715, CHRISTCHURCH.
P.O. Box 12, Symonds St. P.O. AUCKLAND.
P.O. Box 220, PALMERSTON NORTH.





Left: A hydraulic ram operated by water impounded in the dam seen above. Right: This engine pumps water quite efficiently, but it requires more care and attention than an automatic-pressure outfit.

Augmenting the Farm Water Supply.

Delivering and Distributing the Water.

P. S. SYME, Instructor in Agriculture, Warkworth.

(*Continued from March issue.*)

SEARCHING for underground water, like searching for minerals, is sometimes a speculation. If a good supply is obtained the speculation then becomes an exceedingly good investment, and one which can be depended on to yield generous and unfailing dividends for so long as stock are carried on the farm.

Once the water has been located the element of chance is completely eliminated and the farmer has to deal only with facts. There are many ways by which the water can be delivered and distributed; it remains merely to decide which method in any given circumstances is the best one to adopt.

Some farms are fortunate in possessing water at a level sufficiently high to provide a natural gravitation supply. This, however, is by no means common, and if a gravitation supply is to be made available the water must first be pumped to a reservoir or storage tanks which is high enough to ensure a satisfactory flow to all points required. Where the demands are heavy, as on a farm, this involves the use of mechanical power, and consideration must be given to the different forms of power which can best be made available.

Having dealt in his previous article with the means of gaining access to water, the author now discusses ways by which the water can be delivered and distributed. Valuable hints are given on which method should be adopted in any given circumstances.

Windmills.

At one time windmills were very widely used for pumping water, but the common spectacle of decrepit and disused windmills now seen dotted over the countryside bears witness to changing times. The windmill has now been largely supplanted by the petrol-engine or the electric motor. Although the wind is free, experience shows that the initial cost of a windmill and the risk of prolonged calms, which necessitates the provision of considerable storage capacity, may effectively counteract the advantage of cheap power.

Where the use of a windmill is contemplated special attention should be paid to the proposed site. In view of the fact that the power developed by a 6 ft. mill in a 15 m.p.h. wind is only about $\frac{1}{8}$ h.p., such a mill is not likely to prove effective if screened from the prevailing winds by buildings, hills, or trees. It should also be remembered that small trees may ultimately become large trees, and if they are on the wrong side of a boundary fence they may in time cause trouble between good neighbours.

The best position for a windmill is immediately above the bore or reservoir. If the mill is masked by buildings or trees in this position, however, it is usually advisable to erect it in a more exposed situation some distance away, care being taken to see that the water lift is not beyond the effective suction limit of about 25 ft. If the vertical lift approaches to about 20 ft. a foot valve should be employed.

Petrol Engines.

On many farms, particularly if the water is being pumped from a bore at the cow-shed, an oil-engine offers the most satisfactory method of driving the pump. The common objection to the oil-engine—the constant journeys to start the pump—do not then apply, while the additional cost involved in the use of a separate engine for pumping is thus overcome.

Electric Motors.

Electric power, where available, probably provides the cheapest and at the same time the most satisfactory medium which can be utilized for operating the pump. The power required for this purpose is, as a rule, surprisingly low, and the automatic-pressure outfits now on the market are cheap to run and remarkably efficient.

Left: When erecting a windmill it should be remembered that small trees ultimately become large trees. This windmill is now shaded from the prevailing wind. Right: Even this flow would be sufficient to operate a hydraulic ram.

No time is wasted in going to start the motor, and the plant is so designed that it requires practically no attention whatever over long periods. Models are available in a wide range of tank sizes from 16 gallons to 100 gallons, and operating at maximum in-and-out pressures of from 10/20 lb. to 160/200 lb. per square inch.

In view of the fact that each 1 lb. pressure is equivalent to a head of 2·31 ft. it is evident that such a plant is easily capable of forcing water to any point where it is likely to be required on practically any farm. Moreover, the high working-pressure eliminates the necessity for elevated storage reservoirs, and considerable economy may frequently be effected by the use of the relatively small diameter piping for reticulation which is made practicable by the high pressure available.

The Hydraulic Ram.

Operating under favourable conditions, the hydraulic ram is probably the most perfect completely-automatic device for raising water. The mechanical principle on which the ram operates is very simple—the energy provided by a large quantity of water falling through a small height is used to raise a smaller quantity of water through a correspondingly greater height. Thus, in theory, 10 gallons of water falling through 5 ft. could raise 2 gallons through 25 ft. or 1 gallon through 50 ft. In actual practice the quantities of water raised would be less than those shown, as some power—commonly about one-third—is wasted in friction.

VIA PANAMA
Ceremony of changing the Guard: St. James' Palace.
TRAVEL DIRECT by
For tourists and business people with a Time-limit on their visit Home, the fast, comfortable ships of this line provide an ideal travel medium.
Head Office: Maritime Building, Wellington.
THE NEW ZEALAND SHIPPING CO. LTD.

An approximate estimate of the quantity of water which can be raised by a flow of known volume and fall to a given height can be very simply calculated as follows—

$$\left.\begin{matrix}\text{Water lifted}\\ \text{per minute}\end{matrix}\right\} = \frac{\text{Flow per min.} \times \text{fall} \times 2}{\text{Height raised} \times 3}$$

Where some doubt exists regarding the sufficiency of the flow available it can readily be calculated by counting the time required to fill a 4-gallon bucket.

Rams can be used under a very wide range of conditions, and models are available which will operate successfully with falls as low as 2 ft. Under favourable conditions the water will be delivered to a height of 25 ft. for each foot of fall but it must be clearly understood that the greater the height to which the water is pumped the smaller will be the proportion of the water flowing through the ram which will be delivered per minute.

Many Sizes.

Hydraulic rams can be obtained in a number of sizes to suit the supply of water available for their operation. The smaller sizes should not be used where the water is to be pumped to any considerable height, as their small intake capacity, coupled with the excessive friction due to the small pipes employed, results in unsatisfactory performance. Where the installation of a ram is contemplated, the following figures may prove of use :—

Size No.	2.	3.	4.	5.
Supply needed per minute to work ram (gallons)	2–3	2–4	3–7	6–12
Approximate delivery in gals. per hour (depending on height)	10–15	10–20	15–35	30–60
Size of drive pipe ..	¾ in.	1 in.	1¼ in.	2 in.
Size of discharge pipe ..	½ in.	½ in.	¾ in.	1 in.

It has been found that if a ram is to work satisfactorily there is a definite relationship between the fall available, the length of the drive pipe, and the height to which the water is to be raised, as is shown in the accompanying table.

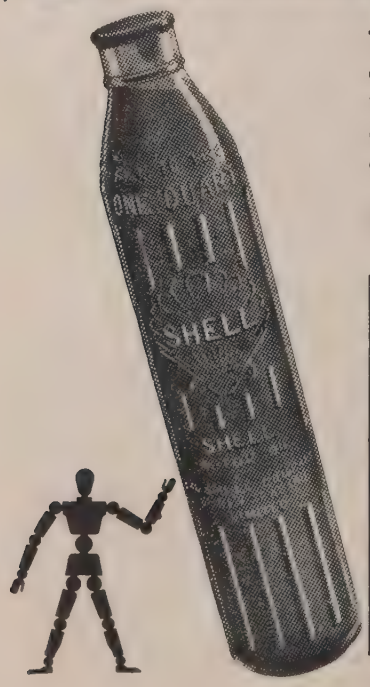
Height to which Water is to be raised above the Ram.	Fall required.	Length of Drive Pipe.
Ft.	Ft.	Ft.
20	3	30
30	4	30
40	5	40
50	7	50
60	8	60
80	10	80
100	14	100
120	17	125

It will be noticed that the height to which water is to be raised corresponds very closely with the length of the drive pipe. Where a ram is being installed under normal conditions the pipes used should conform in size and length with those shown in the above tables. Where the available fall is slight, or where the drive or delivery pipes are unduly long, a larger size of pipe should be substituted, as this greatly reduces friction and results in a better flow of water.

Bends in the pipe should be avoided where possible, but bending the pipe is preferable to using an elbow. The top end of the drive pipe should be protected by a suitable strainer, and should be at least 1 ft. below the surface of the water. The performance of a ram may sometimes be greatly improved by fitting gate-valves on the drive and the delivery pipes.

The ram itself should be set level and firmly clamped to a solid foundation. When first starting the ram the valve should be operated by hand until it begins to work automatically; it should then be adjusted to beat at its most efficient speed as determined by trial. This usually ranges from about 40 to 60 beats per minute.

AVOID DRY STARTING



The NEW Shell Motor Oil is fortified with an exclusive oiliness concentrate, which makes the oil cling to cylinder walls and bearings instead of draining off when the engine cools. It prevents dry starting—one of the most prolific causes of cylinder wear.

A NEW OIL... A NEW PROCESS... A NEW SEALED BOTTLE

NEW SHELL MOTOR OIL

SW 345

THE SHELL COMPANY OF NEW ZEALAND LIMITED (INCORPORATED IN ENGLAND)

The efficiency of a water-supply frequently depends to a very large extent on the suitability of the type of pump installed for the work which it has to perform.

There is on the market to-day a very wide range of mechanical appliances for raising water, such as turbine pumps, centrifugal pumps, rotary pumps, and various models of reciprocating pumps, but it should be understood that these are not designed for general purpose work.

Quite apart from size, some pumps are specially adapted to raise large quantities of water through small vertical heights; some, on the other hand, will handle only a small volume of water, but will raise it to considerable heights. Again, some pumps will operate successfully at a height of 25 ft. above the water-supply, while others are efficient only if close to or actually immersed in the water.

For purposes of farm water-supply reciprocating pumps are usually employed.

Lift Pumps.

This type of pump is suitable only for lifting water to its own level. As the amount of suction which any pump can exert is limited by the atmospheric pressure, such pumps are incapable of raising water from depths exceeding about 25 ft. vertically. They will, however, draw water for considerable distances horizontally provided the vertical lift is not too high.

Force Pumps.

This pump, like the lift pump, draws in water by suction and will not operate efficiently if placed more than about 25 ft. above the water level. Certain models are designed to work only if actually immersed in the water. Once the pump has drawn in the water, however, it will force it up to an indefinite height which is limited only by the strength of the material and the power available.

This is the type of pump most commonly used for a farm water-supply, and it is made in a very wide range of models, each designed specially for some particular kind of work. Special pumps are available for deep bores or wells, and an almost infinite number of different models has been designed to meet the varied needs and conditions demanded for the different classes of surface work.

When installing a pump it is well to note that the water is not drawn off from too near the bottom of a well, as sand or gravel play havoc with valves and leathers. The suction pipe should be absolutely airtight, and if the depth exceeds about 15 ft. a foot valve should be fitted. An effective strainer should be employed to protect the pump.

Where the water is being forced to a height of 50 ft. or more, or over a considerable length of pipe, an air-chamber should always be fitted. The air-chamber tends to equalize the pressure in the pump, helps to maintain an even flow, and obviates the waste of power which results when the column of water in the delivery pipe is alternately set in motion and brought to rest with each stroke of the pump.

Selecting a Pump.

Because of the multiplicity of the models available and the diversity of conditions under which they are designed to operate, it is sometimes wise before purchasing a pumping outfit to consult one of the excellent firms now manufacturing pumping appliances in New Zealand. In view of the fact that the pump is the heart of the water-supply system, its proper selection is a matter of importance, and additional care at this stage may result in reduced working-costs, higher efficiency, and a long period of gratifying immunity from trouble due to a defective pump.

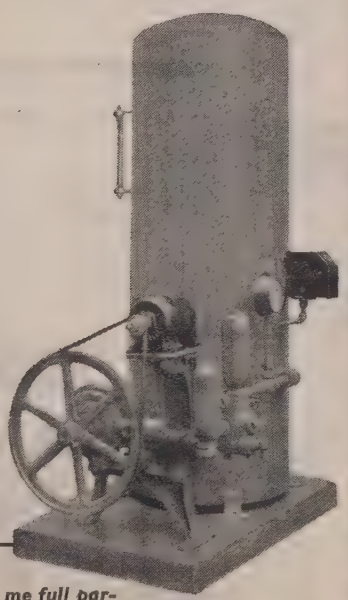
W. H. PRICE & Son, Ltd.

34-36 Manchester Street, CHRISTCHURCH.

Box 1084. Est. 1879. Tel. 36-072.

Manufacturers of "RENOWN" PUMPS AND AUTOMATIC PRESSURE SYSTEMS.

THE illustration shows Model number 31 "Renown" Automatic High Pressure outfit. It requires only one-quarter to one-third h.p. motor to supply 240 gallons per hour at a pressure of 60 lbs. It is fitted with an automatic pressure switch and air volume control. The tank is constructed of heavy steel electrically welded and tested to 120 lbs. pressure.



For full particulars of all pumps post this coupon.

Please send me full particulars of "Renown" Pumps and Pressure systems.

Name : _____

Address : _____

_____ J.A.

COOPER'S

Offer Two of the Most Reliable SHEEP WORM DRENCHES sold in New Zealand.

COOPER'S N.C.A. WORM DRENCH gives satisfactory control of those types of worms for which Nicotine, Copper-Sulphate is the recognised remedy. Cooper's N.C.A. Drench is a scientifically prepared product—purity of chemicals is guaranteed. No labour in mixing—only requires dilution with water.

Cooper's
N.C.A.
NICOTINE · COPPER SULPHATE · ARSENIC
WORM DRENCH
(Registered pursuant Stock Remedies Act 1934)

COOPER'S WORM DRENCH (Carbon Tetrachloride).

One gallon doses 900 sheep or 1,800 lambs.

Owing to high concentration, Cooper's Worm Drench doses more sheep per gallon than any other similar drench. It definitely controls certain types of worms. Most efficient remedy against Liver Fluke. No mixing required—use it straight from the tin with the Cooper Adjustable Doser or Cooper Drenching Gun.

Cooper's
CARBON TETRACHLORIDE
WORM DRENCH
(Registered pursuant Stock Remedies Act, 1934)

It is wise to adopt alternate dosing between Cooper's N.C.A. *and* Cooper's WORM DRENCH *and thus be sure of controlling the several types of worms causing the greatest damage.*

Cooper's Worm Drench and N.C.A. Drench are obtainable from your merchant.

Careless Handling of Fat Stock Causes Severe Losses.

Rejection and Degrading Can Be Reduced by Average Care and Attention.

W. T. COLLINS, District Superintendent, Live-stock Division, Auckland.

FREEZING-WORKS throughout the country are now in full swing, and a large number of cattle, sheep, and pigs are being slaughtered and prepared for export to our overseas markets.

This country can supply meat and meat products equal to anything that can be produced by other exporting countries, but it will not do for us to sit down and be satisfied with our present position, for other countries are improving their stock and improving their methods, and unless we strain every effort to keep ahead of them we will soon find that they have passed us in the race for supremacy and have left us a good leeway to make up.

In spite of the many advantages we enjoy in climate, &c., which make the rearing and fattening of stock comparatively easy, we fail to take full advantage of our assets, and are prone to be careless in the handling of our fat stock between the farms where they have been fattened and the works.

Any one visiting the works will see many lines of cattle, sheep, and pigs that give every indication of careless handling either on the farms, during transport, or at the place of slaughter. This careless handling invariably leads to bruising, as a result of which the carcass has to be rejected for export or degraded. Consequently, a loss follows which could have been avoided had more careful methods been employed.

If the fact that fat cattle are very easily bruised were more fully realized by those who handle them greater care would be exercised in dealing with them right from the paddock to the slaughtering floor. A stock whip should never be used on cattle, even during mustering, and great care should be taken in driving cattle through gateways, &c., for if a jam occurs it will invariably result in some of the cattle being bruised along the ribs.

> "The total amount lost to the Dominion as a result of the rejection for export of carcasses of cattle, sheep, and pigs for causes that can easily be avoided with average care and attention between the farm and the works must, in the aggregate, run into a very large sum, and it is up to every one concerned to exercise more care and reduce this loss to a minimum."

Drover's Responsibility.

A drover cannot exercise too much care in driving a mob of cattle from the farm gate to the works, saleyards, or trucking-yards, as the case may be. The responsibility is on his shoulders to deliver his charges in good order and condition, and it requires constant vigilance on his part to see that this is done. He should allow himself ample time to reach his destination, and should avoid a rush and bustle at the end of the journey.

The beef breeds naturally produce the best carcasses for the chilled-beef trade, and these are the very breeds of cattle that are not used to being handled. Consequently, they are nervous and shy when approached by men and yarded, and should therefore be handled with extra care if bruising or other damage is to be avoided. Trucking cattle at railway-yards might lead to considerable damage unless they are handled carefully and patiently. Driving fat cattle up a race and getting them into a truck is so completely foreign to anything they have been used to that they are liable to get panicky unless all operations are carried out quietly and without bustle.

THREE SPECIALS

WARKWORTH

27½ ACRES.—Level to undulating land, about 18 acres in grass, balance bush. New 4-roomed Bungalow; 4-bail cowshed. Beautifully situated, just handy to township on salt water. House in elevated position with splendid views. PRICE ONLY £875. Terms, £250 Cash.

KAUKAPAKAPA

190 ACRES, PARTLY-IMPROVED FARM FOR £2,450. About 20 acres flat, balance undulating, all ploughable. Approx. 115 acres in grass. Fenced into 11 paddocks. Carrying capacity now about 40 cows, and capable of very much further improvement. Modern home, 5 rooms, bathroom, porc. bath and basin, p.w.c.; garage, implement-shed, 6-bail cowshed, &c. Handy to Kaipara Harbour. Exceptionally good buying. £800 DEPOSIT satisfactory.

PUKEKOHE DISTRICT

74 ACRES.—All undulating land; fenced into 20 paddocks; watered by running creeks. All in grass except 2 acres crops. Farm is understocked at present—owner has milked 61 cows. Five-roomed house, elec. lights and conveniences; 6-bail cowshed, elec. power at shed, motor garage, chaff and implement shed, pigsties, calfshed, &c. Owner is an elderly man, who is unable to carry on the work of the farm, and has reduced the price to £3,000 AS FULL GOING CONCERN, including 43 cows, 3 heifer calves, bull, 2 horses, 3-cow milking plant, good list implements. Will accept £1,000 deposit from suitable purchaser.

Full details all three farms from sole agent:

JNO. GREY.

AUCKLAND: 1-3 Winstone Bldg., Queen Street. Phones: 43-668 and 45-062.

HELENSVILLE: Phone 13. Private phone 28-216.

Cattle that are driven to the works invariably arrive in better condition as far as bruising is concerned than cattle carried in trucks, but, at the same time, cattle can be trucked long distances and still show very little damage on slaughter if all care is taken in trucking operations.

A great deal of the damage to be seen at the works is due to damage by horns, and all this could be avoided by breeding polled cattle or preventing horn growth in the horned breeds when they are very young.

Fate of Carcass.

What happens to the bruised carcass will, of course, depend on the extent of the damage. If the bruising has been extensive, such as might occur when an animal gets down in a truck and cannot get up, it may be necessary to condemn the whole carcass, but fortunately such cases are rare.

The condemnation of one quarter of a carcass as a result of bruising or other damage is far from rare, and the rejection of a carcass for export or the degrading of a prime carcass into the second grade is quite common.

Sheep and Lambs.

More care in handling of sheep and lambs between the paddocks and the place of slaughter would undoubtedly reduce the number of carcasses rejected for export. Here again it does not appear to be fully realized that both sheep and lambs are easily bruised unless handled with care. Among the many ways that might cause injury and bruising the following may be mentioned.

Sheep and lambs are liable to be injured before yarding through being hustled by over-zealous dogs during mustering. Poor yards and narrow gates may be the cause of extensive bruising of both sheep and lambs, especially if overcrowding and jamming at the gates occurs during the process of picking out the "fats."

Many sheep and lambs are now loaded into lorries at the owners' yards, and when this occurs care and patience should be exercised during loading operations. Dragging them along by the wool or prodding them with sticks are almost certain ways of causing bruising and rejection for export. The same remarks apply to loading sheep and lambs into railway-trucks. Overloading and jamming sheep or lambs into trucks should not be permitted, as injuries are bound to occur if any get down and are unable to rise. On the other hand, underloading should be avoided, as the sheep or lambs are liable to be thrown about too much.

A rough, biting dog not under proper control may cause injury and loss to an owner far exceeding its value as a worker.

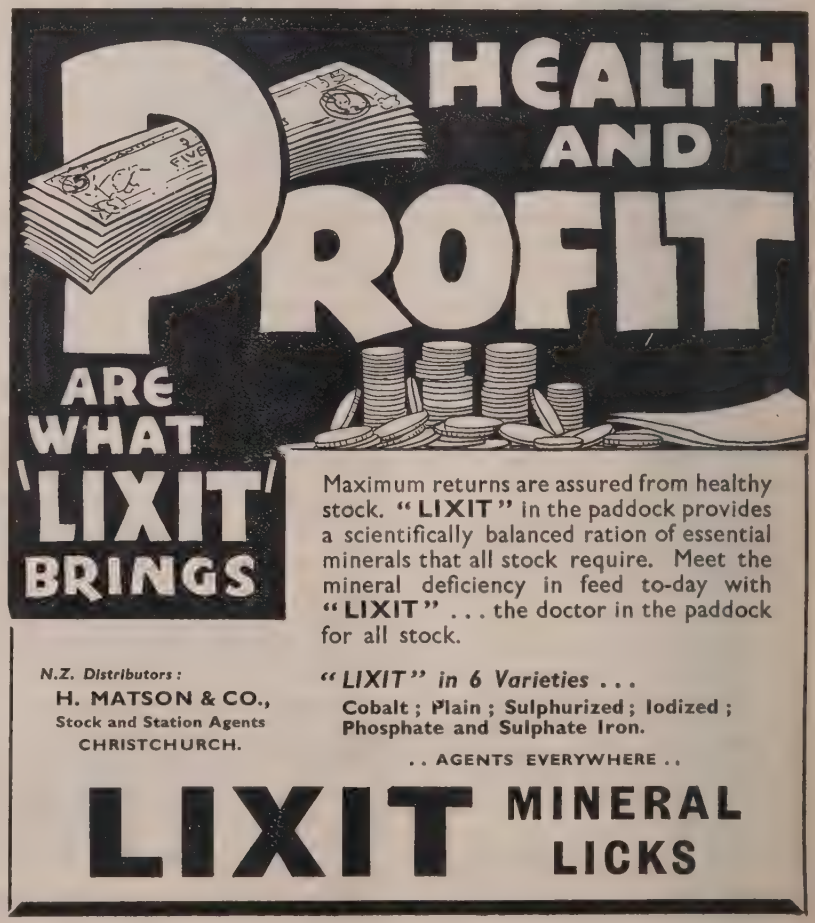
Pigs.

A visit to any works when large numbers of pigs are being dealt with would soon provide evidence that many of them had not received much consideration while being transported from the farms. Weals and bruises on the backs and sides indicate that more force than necessary has been used in driving the animals into trucks or lorries. These forceful methods might mean a saving in time, but they are liable to be costly when they reduce a carcass from the prime grade to the second or even to the unexportable class, with the resulting lowering in price per pound.

Many pigs now pass through the saleyards before finally reaching the works, and here again much bruising is liable to occur during unloading, yarding, and reloading operations unless great care is taken.

At a country sale a few days ago some fine lines of fat pigs were penned up for sale, and as the auctioneer and buyers moved along the pens the pigs were given a good jab with a long stick to make them move about and show themselves. From the vendor's point of view this method might be quite all right, but it is possible that the carcasses of these pigs would show the marks when hung up for grading and cause otherwise prime pigs to be reduced to the second grade.

The total amount lost to the Dominion as a result of the rejection for export of carcasses of cattle, sheep, and pigs for causes that can easily be avoided with average care and attention between the farm and the works must, in the aggregate, run into a very large sum, and it is up to every one concerned, whether on the farm, road, or at the works, to exercise more care and reduce this loss to a minimum.


HEALTH AND PROFIT
ARE WHAT 'LIXIT' BRINGS
Maximum returns are assured from healthy stock. "LIXIT" in the paddock provides a scientifically balanced ration of essential minerals that all stock require. Meet the mineral deficiency in feed to-day with "LIXIT" . . . the doctor in the paddock for all stock.
N.Z. Distributors:
H. MATSON & CO.,
Stock and Station Agents
CHRISTCHURCH.
"LIXIT" in 6 Varieties . . .
Cobalt; Plain; Sulphurized; Iodized; Phosphate and Sulphate Iron.
. . AGENTS EVERYWHERE . .
LIXIT MINERAL LICKS

A view of the field rearing-cages at Nelson.
[W. C. Davies photo.

Parasitic Control of Pests.

Experiments With White Butterfly And Diamond Back Moth.

J. MUGGERIDGE, Government Entomologist, Division of Entomology, Plant Research Bureau.

THERE is no doubt that parasitic control of the white butterfly has proved outstandingly successful, even though we are faced with occasional outbreaks of the pest, such as occurred during last season (1937–38). It is not too much to say that were it not for the presence of the parasite the growing of farm crops, such as rape, turnips, chou moellier, swedes, &c., would be rendered so uncertain as to be economically impracticable.

Control of an insect pest through the use of parasites can seldom, if ever, reach 100 per cent., although there are times when the butterfly parasite so far reduces the numbers of its host that even the dusting or spraying of cabbages or cauliflowers by the "home gardener" or "market grower," where a high degree of control is required, becomes unnecessary.

Where artificial control methods are desirable, however, the use of a dust gun, which may be purchased from florists' or hardware shops and even grocers' shops, will be found convenient. Quite a number of proprietary dusts are on the market, and the directions for their use are usually found on the container. The best time to apply them is in the early morning when dew or moisture is on the plants, as this helps the dust to adhere.

Were it not for the presence of the parasite on the white butterfly the growing of many farm crops would be rendered so uncertain as to be economically impracticable. The writer traces the work that has been done with parasites, and describes the experiments being carried out on a new parasite of the diamond-back moth.

For our present parasite control we are relying on one species of insect, and it seems rather much to hope that this one by itself will prove sufficient to control the butterfly under all the varying climatic conditions encountered throughout New Zealand over a whole season. Wide fluctuation in the butterfly populations are bound to occur, and in order to reduce these as far as possible the introduction of other kinds of parasites will be necessary.

In England the Farnham House Laboratory Parasite Catalogue contains more than thirty species of parasites of the butterfly, but of this number only a small proportion are likely to prove suitable for introduction. Two rather common ones are *Apanteles glomeratus* L. and *Apanteles rubecula* Marsh., both of which species attack the butterfly caterpillars.

Important Parasite.

When I was visiting Europe last year I found *A. rubecula* to be very generally distributed in the crops in the different countries visited, and I was left with the impression that it was a far more important parasite of the butterfly than was generally realized. On the other hand, *A. glomeratus*, which is generally considered an important enemy of the butterfly, is also common in Europe, but because of its association with the "large white" butterfly of Europe it is difficult to know whether it is as important a parasite of *Pieris rapae* L. as it has been considered to be in the past.

In the United States of America, for example, where the "large white" does not occur—as is also the case in New Zealand—it gives a high percentage parasitism. Supplies of this species obtained from England (in 1932–3–4)

failed to become established in New Zealand, even though they were liberated in large numbers under what appeared to be favourable circumstances. The reasons for the failure are not clear, but another attempt is now being made to establish it here, with the difference that the initial supplies in the present instance are being obtained from the United States of America. This work is at present in progress.

The chrysalid parasite *Pteromalus puparum* L., which has been liberated far and wide during the past five years with the assistance of officers of the Fields Division of the Department of Agriculture, should now be established throughout the country, and it is felt that the rearing of further supplies can be discontinued after the end of the present season.

Diamond Back Moth.

The diamond-back moth is a pest of annual occurrence in New Zealand, and it attacks the same kind of crops as the butterfly. Because of its size and habits it is less conspicuous, but it is nevertheless very destructive. Many farmers contend that it is a far more serious pest than the butterfly, but in my opinion the butterfly would prove easily the more destructive in the absence of parasite control.

Only for a comparatively short while in the early stages of its appearance in Hawke's Bay was the white butterfly able to breed unmolested by its natural enemies, when its potentialities for rapid multiplication, quick spread, and serious damage were well demonstrated.

When travelling through Europe during the past year in search of parasites of the diamond-back moth I experienced great difficulty in finding them, as nowhere throughout the tour could it be found in any numbers, and severe attacks by it such as we know them in this country are apparently unknown. The entomologists in that part of the world were hardly acquainted with it and did not regard it as a pest, and consequently the factors which keep it in check were, in general, very little understood.

Some entomologists attributed its control to climate, while others were of the opinion that parasites were the main factor; certainly spraying played no part in it, as this method of control was quite unnecessary, at least in such countries as France, Italy, Yugoslavia, Hungary, &c.

A formidable array of parasites are recorded from the moth, but here again comparatively little is known regarding them, except that there are a few species which apparently attack it far more readily than the rest, but as to which is the most important one we can at this stage only guess. Information which we require in connection with the different species includes a knowledge of behaviour under different sets of climatic conditions and, where more than one species is to be liberated, an understanding of how one kind is likely to react on another. For example, if both kinds of parasites lay eggs in one caterpillar and there is only enough food for one parasite, which will be the survivor?

Throughout most of the journey in Europe a high percentage parasitism of the moth collected was obtained in the different countries visited. This high percentage parasitism occurred even though there was very little of the moth to be found. This suggests the possibility of there being a number of hosts other than diamond-back moth on which some of the parasites might readily breed. This being the case, it may account for the high percentage parasitism of the moth under a wide variety of different circumstances. In introducing any of these into New Zealand we cannot say how they will react. This can be determined only by experimentation as our fauna may present a

Farmers!

GUARANTEE

THE

FINANCIAL WELFARE OF YOUR DEPENDENTS

BY EFFECTING

ADEQUATE ASSURANCE

WITH THE

GOVERNMENT LIFE INSURANCE DEPARTMENT.

Every Year a Bonus Year.

ALL FUNDS INVESTED IN NEW ZEALAND.

very different aspect from that to which the parasites were accustomed in Europe.

During last season we introduced into New Zealand one of the important parasites — namely, *Angitia cerophaga* —and it is pleasing to relate that this insect is becoming acclimatized and is now well established. From our field surveys during the present season this species has been recovered from Nelson, Waimea Plains, and Blenheim. We cannot yet say what part it will play in control, although it seems certain that it will play some part in the reduction in population of the moth. It is impossible to say whether the reduction is likely to be noticeable in an economic sense. One of the factors which may reduce this parasite below the economic efficiency mark is the fact that it is itself attacked by another parasite native to New Zealand. The reactions from this attack can be determined only by time and circumstances.

Work This Season.

During the present season we are working on the establishment of another parasite of the diamond-back moth, a chrysalid parasite (*Diadromus collaris*) which has been introduced. This is being bred up in large numbers under cage conditions in the field, and an attempt at establishing it in the field is being made in the vicinity of Hastings, Hawke's Bay. This locality was selected because of the slightly longer season and because, in general, it is felt to be a very suitable area for this work.

The method of rearing these insects is briefly as follows. Cages are erected over suitable cabbage-plants, and in them the moth is liberated and allowed to breed. When young caterpillars reach a suitable stage parasites are liberated on them, and later, when their development is completed, the parasites in the chrysalid stage are collected from the cages. From here they are sent to the field area in Hastings, where their numbers are further increased by again rearing under cage conditions, and they are then liberated in the field.

This chrysalid parasite appears to be becoming established, although it will depend on how it responds to the coming winter conditions before we can make any definite statement. A considerable amount of work remains to be done in connection with this investigation, as, if we wish to introduce all of the more important species of parasites from Europe, some very careful and difficult biological studies will need to be undertaken.

In conclusion, I wish to point out that none of the above parasites is available for distribution. Further, when we reach that stage this phase of the work will be conducted through officers of the Department of Agriculture.

"One man (and his dog) went to buy . . . went to buy a Harrow."

He discovered one which had—

(1) The lightest draft.
(2) Self-contained transport
(3) Self-cleaning under all reasonable conditions.
(4) Positive penetration, easily adjustable to any required depth, (very light, light, medium, deep, or very deep harrowing).
(5) Keep-sharp points.
(6) Wear minimized to long life points (only 7d. each.)
(7) Individual flexible Tines.
(8) Quality built—comparing more than favourably with the best of any imported machinery.
(9) Patented, designed and built by a New Zealander.

Then he was shown letters—

from amongst hundreds received from satisfied users, who, although they had the right to return the harrow under the written money-back guarantee, preferred to write and praise the implement, and the wonderful returns it had obtained for them. These letters stated that from results it had been proved that the harrow was the best for—

(1) Cultivating and spreading.
(2) Opening up the ground, admitting air, sun, moisture and fertilizer to the plant roots, where it is wanted, thus invigorating the pasture and making the plants deeper rooted, and consequently more drought-resisting.
(3) Renovation of Lucerne, Paspalum, or an old pasture for surface sowing.
(4) Combing out weeds and rubbish, including Rat-tail, Fog, Blackberry roots, &c.
(5) Lightest draft and easiest on horses, because the penetration is sustained (no jumping in and out.)

He read also of other advantages—too many to enumerate—so he bought one of these marvellous Harrows. He used it—and so pleased was he also, that he told his friends what a good harrow he had—

with the result that—ONE MAN— two men—three men—four men—five men—six men—seven men—eight men—nine men—ten men (and their dogs) went and bought "BEVIN" HARROWS—and they in turn told their friends —and so it has gone on for the past two years, with the result that we have been, for some time, literally deluged with orders.

Now, you might not think that you want a "BEVIN" HARROW, but believe us—your pastures can benefit from it to your great advantage. (We guarantee this.)

So send in the coupon NOW! The "BEVIN" HARROW is in far greater demand than you can possibly realize. Executing orders with reasonable promptness is already keeping us more than busy, and as we do not want to inconvenience you with delayed delivery—please don't leave it until the last minute, will you?

COUPON

To ALISTER BEVIN, Dept. J.
38 Albert Street (Box 880),
AUCKLAND.

Without obligation *or pursuit*, please send me fully illustrated catalogue, &c. (including your written money-back Guarantee.)

Name .....

Address .....

4/39. J.

Fig. 1.—The Horohoro Native Development Area.

Creation of a National Asset.

Encouraging Response from Maori Farmers Under Native Land Development Schemes.

C. WALKER, Instructor in Agriculture, Hamilton.

FOR some years a vigorous programme of Native-land development has been followed in various parts of the North Island, and more particularly in the Auckland Province. These development schemes were brought into being largely by the energetic efforts of Sir Apirana Ngata, who saw that the happiness and progress of his people could be attained only by the inauguration of a vigorous land-settlement scheme which would enable them to reap a full reward from their farms, and it must be very gratifying to all concerned to note the wonderful response that is being received from the Native farmers who are now occupying the land.

Sir Apirana Ngata's efforts caused a great deal of interest throughout the country, and, chiefly as a result of his enthusiasm, our late Governor-General, Lord Bledisloe, presented a handsome silver cup for competition. This is known as the Ahuwhenua Trophy, and is awarded annually to the best Native farmer working under the Native development schemes.

> A wonderful response is being received from Native farmers who have come under the Native-land-development schemes in the North Island. It is considered that, provided they receive some supervision and guidance along sound lines, the creation of a national asset in the conversion of the land from non-productive, weed-infested blocks to farms of high producing-capacity will result.

Transformation.

In the past Native lands have been regarded as harbours of most noxious weeds. Many of these areas, after a short period of cropping, were permitted to return to volunteer growth, which frequently consisted of nothing more than blackberry, gorse, and ragwort. Seed was dispersed from these patches to neighbouring grassed areas, to their serious detriment. In fact, it could be claimed with a good deal of justification that these areas were the greatest menace confronting adjacent farms.

Since the beginning of development on Native lands this problem of noxious weeds has received close attention. Badly infested areas have been cut, grubbed, and sprayed prior to ploughing and resowing to pasture. Subdivision has been carried out until adequate control with stock could be practised. Thus, to-day we find highly productive farms,

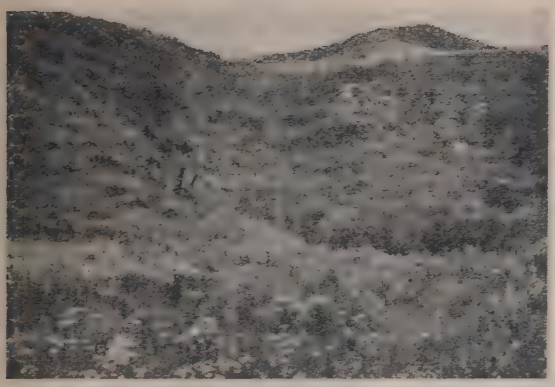


Fig. 2.—Typical undeveloped Native land. Note the ragwort on the cultivated flat now spreading on to the hill slopes.

Fig. 3.—Native farms in the Tikitiki district. Note the general farm tidiness and preservation of shelter trees.

Fig. 4.—A farm in the Opotiki district, showing the vigour of the pastures, the neatness of the homestead, and shelter provision.

Fig. 5.—A Native homestead built of kauri slabs. Many of these homes are kept in an exceptionally clean condition.

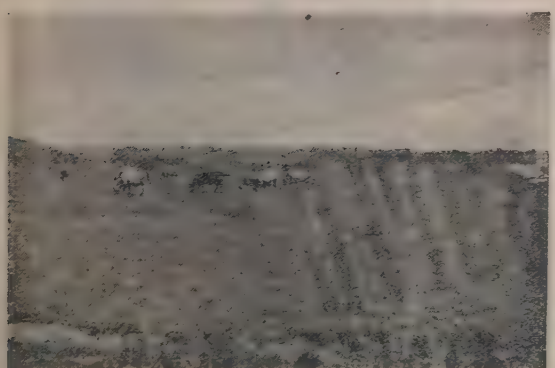


Fig. 6.—Part of a dairy herd grazing young pasture on land which was in fern and tea-tree two years ago.

Fig. 7.—Young stock reared on a Native farm.

which compare favourably with the better European farms, supplanting the weed-infested areas of a few years ago.

Even if no better purpose were served than the elimination of weed-infested areas, much of the expenditure on this work could be justified.

Figure 2 indicates the degree of ragwort infestation that has occurred on many Native areas. In Fig. 3 some idea of the transformation from heavily gorse-infested country to good pasture can be obtained. Within four years the change has been effected, and little or no indication of its previous condition is apparent. Figure 4 shows one of the two leading farms in the 1938 competition. Previously this block was covered in scrub and was fairly heavily infested in parts with ragwort; to-day it is one of the show farms of the East Coast district.

Development of Native Farming.

The control or elimination of weeds, however, is by no means the only direction in which benefits have accrued from the development of Native lands. From the earliest times the Maoris have tilled the soil and grown crops for food-supplies, but with the advent of European occupation they tended to drift into casual jobs rather than develop areas on their own account.

Now, under the provisions of these development schemes, they are being given opportunities of returning to their lands and becoming producers on an equal basis with other farmers. Although they receive considerable assistance at the outset, many display a commendable spirit of independence. This is well illustrated in Fig. 5, where a Native farmer has built his own cottage from split kauri slabs, rather than incur a considerable liability for a dwelling.

In addition to the improvement of conditions along the above lines, the Native farmers are encouraged to practise cleanliness and tidiness in all their activities. The response has been excellent; homes are frequently models of neatness within, and are set off by tidy lawns, flower and vegetable gardens, concrete paths, and well-kept hedges. Milking-sheds are kept in exceptionally good condition. In fact, the standard of cleanliness here leaves nothing to be desired.

Provision of Shelter.

This aspect of farm improvement is receiving attention on many of the blocks; in fact, tree-planting has been practised from the start of development. As a result, the farmers who took over such land had ample shelter for stock and pastures, a factor which plays quite an important part in production.

In addition to the planting of trees, considerable foresight has been exercised in the preservation of native trees for shade. These consist of single trees, such as puriri and karaka, or small clumps of native bush. Figures 3, 4, and 5 illustrate this point quite well, and it is further emphasized in Fig. 1, which gives a general view of the Horohoro Development Scheme.

Care and Breeding of Stock.

Many of the herds are showing signs of careful management, and there is ample evidence from the docility of the animals that they are treated with every consideration. Apart from this aspect, the quality of the stock is showing steady improvement. Pedigree bulls are being used, herd-testing is being practised, and only the better-quality heifers are carried forward for herd replacements.

A marked advance is also being effected in the quality of pigs. This has been

brought about by the use of pedigree boars and, in some instances, pedigree sows also.

In Fig. 6 a section of a good type of grade herd is shown grazing on a young vigorous pasture, while in Fig. 7 are shown some of the young stock raised on the same farm.

Perhaps the chief weakness to date in Native farming lies in the inadequate provision for winter. Generally speaking, most Native farmers enter the winter period somewhat short of crops, hay, and ensilage. Stock cannot be expected to come into production in good condition unless they are wintered well, and the aim of these farmers should be to increase materially their reserves of hay, silage, and roots.

Although the above remarks apply generally, there are some men who fully appreciate the value of adequate winter feeding. On some farms definite areas are reserved each year for hay and ensilage, other fields are devoted to cropping in rotation, and in a few instances stands of lucerne have been established.

In Fig. 7 quite a good crop of maize can be seen in the background.

The Future.

There is ample evidence that the future of these farmers is assured, provided they receive some supervision and guidance along sound lines. At the present time they are receiving good service in these respects from the various supervisors. Much of their success, however, will depend upon the continuation of such practices as suitable top-dressing, herd-testing, and herd-improvement by use of good-quality sires. In addition, they will require encouragement to carry out further farm improvements.

Fig. 8.—A contrast in vegetative types. Young, vigorous pasture on the left one year after conversion from fern and scrub, as shown on the right.

Provided these factors are given attention, the present indications point to a marked improvement in the lot of these farmers and the creation of a national asset in the conversion of these areas from non-productive, weed-infested blocks to farms of high production capacity.

A NEW ANGLE ON SOCIAL SECURITY

Little Miss Jones has arrived in prosperous days when father is working full time, but the thousands of "Jones" families will know security only so long as N.Z. industries are busy. Next time you shop, remember that N.Z.-Made goods now equal the finest imported lines; remember your husband's job, the future of your family—and buy NEW ZEALAND MADE!

How Secondary Industries Help the Farmer.

The employment of larger numbers in secondary industries assists the farmer, who faces less costs in supplying home requirements. He also gains from the increased export prices due to less produce going overseas. It is in his interest also to ask "IS IT MADE IN NEW ZEALAND?"

DEVELOP NEW ZEALAND

Buy

NEW ZEALAND PRODUCTS

APPROVED
by the Department of Agriculture.

AGROSAN · G has been proved by the New Zealand Plant Research Station to be an outstandingly efficient seed disinfectant for dusting agricultural seeds, such as wheat, oats, barley, and peas. AGROSAN · G completely controls the widest possible range of seed-borne diseases, and gives quicker and more uniform field germination.

N.B.—The grade of AGROSAN · G now being supplied to New Zealand users is similar in every respect to that referred to in official reports as "AGROSAN · G IMPROVED."

Use* AGROSAN · G *with Wheat, Oats, Barley, Peas, and all other seeds.

PURCHASE YOUR SUPPLIES *NOW* FROM

YOUR STOCK AND STATION AGENT, SEED MERCHANT, OR SEED CLEANER,

or
- F. COOPERS, LTD., WELLINGTON
- MESSRS. DALGETY & CO., LTD.
- MESSRS. N.Z. LOAN & MERCANTILE AGENCY CO., LTD.
- MESSRS. WRIGHT, STEPHENSON & CO., LTD.

AGROSAN · G is a product of
IMPERIAL CHEMICAL INDUSTRIES LTD.
GREAT BRITAIN

ICI

Further information can be supplied on application to Box 900, Auckland.

Certified Government Stock Cocksfoot Seed (College C23 Strain).

Conditions of Ordering and Distribution.

A. H. FLAY, Canterbury Agricultural College, Lincoln.

SUPPLIES of the college strain C23 cocksfoot-seed have been available commercially for both the "mother" and "pedigree" grades for a year or more. This year the college has decided to release into commerce the highest grade of this cocksfoot—certified Government stock seed.

The quantity of this seed is necessarily limited, but the aim is to make seed available to all those who desire to grow it for seed-production for their own use or for commercial purposes.

Ordering and Distribution.

The following conditions have been drawn up governing the ordering and distribution of Government stock cocksfoot-seed (college strain C23). The scheme of distribution is based on that adopted by the Department of Agriculture for the distribution of perennial rye-grass, white clover, &c., as published in the *Journal*, November, 1938, p. 419. The conditions as decided by the college are—

(1) Orders will be received only from mercantile firms, who may place orders on their own behalf or on behalf of clients, except that those farmers now assisting the college in propagation of this cocksfoot may order seed direct from the college.

(2) Orders should be placed with the Director, Canterbury Agricultural College, Lincoln, Private Bag, Christchurch.

(3) All orders to hand at 31st March of any one year will receive equal consideration in the distribution of any seed available at that date.

(4) If necessitated by the number of orders received, the college reserves the right to make a *pro rata* allocation of seed.

(5) The college, immediately after the 31st March in each year, will advise merchants of the total quantity of seed allocated in respect of the order or orders placed with them, together with the particulars and price of the seed.

(6) Such advice is subject to confirmation by the merchant concerned of acceptance of the seed allocated.

(7) Delivery of seed will be made immediately after 30th April of any one year or any later date advised by the merchant, but not later than 31st August following.

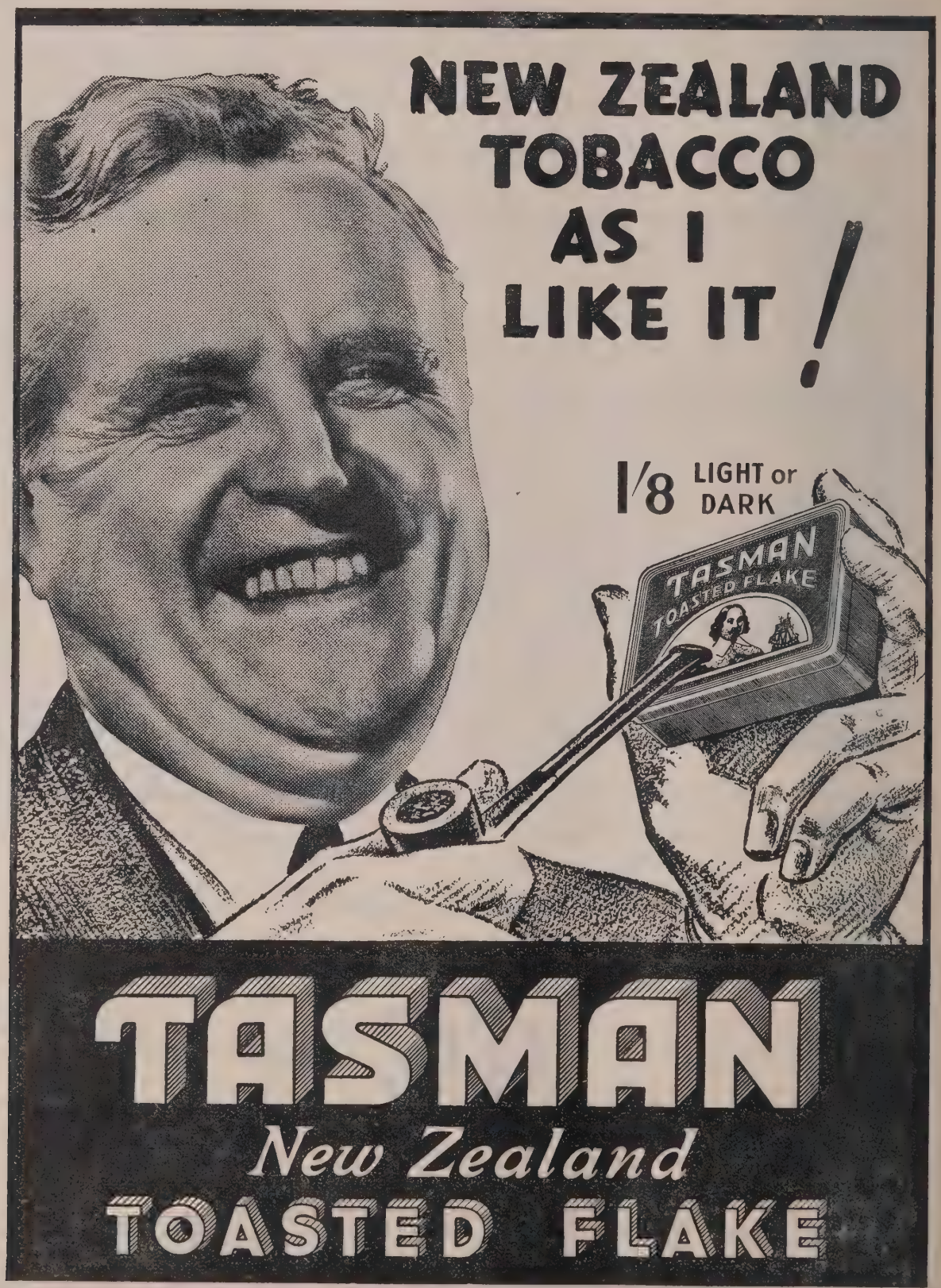
(8) In the event of a surplus of seed after the filling of orders received up to 31st March, such seed will be utilized to fill, in order of receipt, orders received subsequent to that date.

Important Note.

For the year 1939, because of the late release of the above information, orders will be received up to 30th May, and immediately after this date the college will advise merchants of the total quantity of seed allocated in respect of their orders, together with particulars and price of seed. Delivery will be made as soon as possible after confirmation of orders.

MADE WITH LANOLINE
CAMFOSA
TEAT SALVE
1/11, 3/6, 6/-
EVERYWHERE

THE OPPENHEIMER CASING CO., LTD.
No. 9 MAGINNITY STREET, WELLINGTON
P.O. Box 93
Telegrams: "OPCAS"
SHEEP, LAMB, AND HOG CASINGS
FACTORIES THROUGHOUT NEW ZEALAND.


NEW ZEALAND
TOBACCO
AS I
LIKE IT!
1/8 LIGHT or DARK
TASMAN
TOASTED FLAKE
TASMAN
New Zealand
TOASTED FLAKE

Covered Corriedale hoggets on a North Canterbury property.

Rugging of Flock Sheep.

Marked Improvement in Wool Indicates Scope for Extension Of Practice.

J. E. DUNCAN, Wool Instructor, Live-stock Division.

IN the June number of the *New Zealand Journal of Agriculture* I gave a brief survey of the results obtained from the rugging of flock sheep in Australia, and then touched on the preliminary aspects of two experiments which were already under way in this country. Before giving any further results of our local trials I shall mention very briefly one or two further progress reports to hand from Australia.

Further Australian Results.

At the Sydney Sheep Show last year a number of rugged sheep were on display, and excited a good deal of interest and favourable comment. The *Pastoral Review* (July, 1938) gives some interesting figures for prices realized on several lines of rugged and unrugged sheep sold at public auction at Flemington. There were several small lines of sheep—wethers, ewes, and hoggets.

In each case the comparison for both carcass and skin value was in favour of the rugged sheep, the excess over the unrugged sheep averaging in each instance as follows: 7s. 1½d. and 1s.; 3s. 5d. and 7½d.; 6s. 6d. and 1s. 3d. The results at shearing of the same sheep in October were also definitely in favour of the rugged sheep, which clipped *on an average* 1 lb. 2 oz. more wool per head than the unrugged controls.

While it cannot yet be claimed that rugging would pay with all breeds of sheep under all the varying conditions in New Zealand, in each of three trials described there was a very marked improvement in appearance, soundness, uniformity, and absence of wasty tip in the wool. Two of the trials revealed a significant gain in actual weight of clean fibre produced, and where price comparisons were possible gains of 2½d. to 4½d. per pound resulted — the conclusion being that rugging does pay with certain breeds of sheep under appropriate conditions.

Another report from New South Wales says that the rugged wool was outstanding in length of staple and trueness of fibre, and showed plenty of character. The following quotation from the *Pastoral Review* (December, 1938) is of interest because, as will be seen presently, it bears out what I have found in New Zealand:—

> "The actual difference in yield on a clean scoured basis has shown a variation in wools grown on different types of country. Tests conducted in Riverina were slightly in favour of the unrugged wool, while tests of a similar nature conducted in the Manilla district proved in favour of the rugged fleeces. The absence of

waste tip on rugged wool, reducing the amount of noil from the combed top to a minimum, must be a factor strongly in favour of rugged wool, taken from a manufacturer's viewpoint."

Finally, to avoid any accusation of being biased, I must in fairness quote a progress report on one other trial mentioned in the *Pastoral Review* (September, 1938) that is being carried out at Albury, New South Wales. Here no significant differences had been recorded between rugged and unrugged groups as far as the trial had gone at that time, and the officer in charge of the trial, Mr. Ian W. Montgomery, considers that " on the data obtained, rugging is unlikely to be economical under conditions of low rainfall and moderate temperatures in the absence of burr and dust." He suggested that " similar observations should be conducted where cold winters are experienced or where dust and burr contamination of wool occurs."

As readers of my previous article will remember, a number of instances were quoted where, under dusty and burry conditions, rugging had yielded a handsome return, so that, as the *Pastoral Review* says: " The report offers no criterion of the economies which may be effected by rugging under more adverse conditions, and must on no account be taken as a condemnation of rugging on economic grounds or as an expression of opinion on the general question of rugging. The report has application to a particular set of conditions and to those conditions only."

It is not my intention to deal any further with Australian results and expressions of opinion in this article, but to give what will be of more direct interest to readers.

New Zealand Trials.

Three trials in Canterbury and one in the Mackenzie country have been followed up, and detailed results for three of them are given. In the fourth case Mr. W. W. Reddecliffe, the owner, was so enthusiastic about rugging that he covered all his hoggets, so that there were no uncovered animals left to act as controls, and on which a comparison could be made. As will be seen from two of the illustrations (Figs. 1 and 2), Mr. Reddecliffe had good reason to be pleased with the beneficial effect of rugging on his wool. He is also even more emphatic than last year about the marked effect that rugging has on the growth and general health, and also reduction in mortality among his hoggets.

The other two trials in Canterbury were also on Corriedale hoggets, and in both cases I kept careful check on the fleece-weights at shearing-time and later did scouring tests to determine the clean-scoured yield of each fleece. Briefly, the procedure was as follows: A bunch of sixty hoggets was selected from the larger flock to give as even a line of sheep as possible to work on. These hoggets

Fig. 1.—Left: A sample of Mr. Reddecliffe's rugged wool. Right: A sample of the unrugged wool.

Fig. 2.—Samples from the same sheep of rugged wool (left), and wool from beyond the rug (right).

were then divided at random into two equal groups of thirty each, one of which was rugged and the other left unrugged to act as a control. Both lots were run under identical conditions of feeding and management throughout the year.

Trial I.

(Owner, Mr. T. D. Jarman.)

Shearing was done towards the end of October, and again there was no question about the effect rugging had had on the general health of the hoggets, the covered ones being noticeably larger and better grown. With regard to the wool, the difference was even more striking, the covered wool appearing very much cleaner, brighter, better grown, and with a marked absence of wasty tip compared with the unrugged wool. The comparison of weights is as follows :—

TABLE I.

(Greasy Weights.)

	Covered.	Uncovered.
	lb.	lb.
Fleece wool	125·3	130·8
Pieces	67·5	45·0
Bellies	19·0	17·2
Locks	18·5	16·7
Total ..	230·3	209·7

Fig. 3.—Rugged wool on the sheep—clean and bright right to the tip.

Mr. Farmer . . .

When ordering rugs for your flock, specify "GOUROCK" quality cotton canvas.

Write for free copy of "THE SECRET OF THE SUPERIORITY OF BIRKMYRE'S WATERPROOFED CANVAS," to GOUROCK Agents, P.O. Box 491, Wellington.

GOUROCK have been manufacturing canvas of all kinds in Scotland for over 200 years.

Stocked by the leading cover makers throughout the Dominion.

GOUROCK ROPES & CANVAS LIMITED.

Box 491 G.P.O. - - - WELLINGTON, C. 1.

Dividing each of these results by 30 to get a comparison, the average for the covered sheep works out at 7·68 lbs. of wool per head, and for the uncovered sheep 6·99 lbs.—*i.e.*, the covered sheep *average* 0·69 or practically seven-tenths of a pound more wool per head *on a greasy basis*.

It will be noticed in the above table that the covered sheep actually produced less fleece wool than the uncovered, but the reason for this is immediately accounted for by the much larger quantity of pieces. The contrast between the covered parts of the fleece and the uncovered points and edges was so great that it was necessary to skirt much more heavily to do justice to the very attractive covered wool.

All the foregoing figures are on a greasy basis, and the point that immediately arises is whether the extra weight shorn by the rugged sheep was a *net gain* of wool fibre or whether it was merely due to extra condition in the wool due to the rugging. The only way to find out was to do actual scouring trials. These I have now done, with the results indicated below. A half-pound sample was taken from each fleece, and the figures for the yields are given in full, as they are of interest in showing the comparatively large range of clean-scoured yields among an even line of sheep growing what appeared to be a very even line of wool.

It will be noted from Table 2 that the fleece wool yields 1·2 per cent. better in the case of covered sheep than the uncovered ones—that is to say, that it contains 1·2 per cent. less extraneous matter, which is one of the main factors affecting the price it will bring at auction. In the case of the pieces the difference is even greater, being 7·3 per cent. As would be expected, the differences in the case of belly wool and locks are not large, as covering does not influence these much.

If we now repeat Table 1 in the light of these clean-scoured yields, we obtain the following :—

TABLE 2.

Covered Wool Yields (Per Cent.).				Uncovered Wool Yields (Per Cent.).			
No. of Fleece.	Yield.	No. of Fleece.	Yield.	No. of Fleece.	Yield.	No. of Fleece.	Yield.
1	74·7	18	63·0	1	64·7	18	65·6
2	66·8	19	63·2	2	68·3	19	72·2
3	56·8	20	59·6	3	62·2	20	64·6
4	68·2	21	75·6	4	59·4	21	59·6
5	74·3	22	70·6	5	62·5	22	68·5
6	69·1	23	62·6	6	61·8	23	62·6
7	68·2	24	69·7	7	61·2	24	60·8
8	62·8	25	70·3	8	69·2	25	68·9
9	73·5	26	63·9	9	69·5	26	70·0
10	79·0	27	68·1	10	66·1	27	56·9
11	56·7	28	56·3	11	71·3	28	71·2
12	70·6	29	72·7	12	69·5	29	70·5
13	61·8	30	68·5	13	62·5	30	72·1
14	64·6	Average ..	67·4	14	73·3	Average ..	66·2
15	71·2	Pieces ..	65·1	15	64·7	Pieces ..	57·8
16	62·0	Bellies ..	55·6	16	71·9	Bellies ..	56·5
17	76·7	Locks ..	46·8	17	64·8	Locks ..	50·0

TABLE 3.

(Clean-scoured Weights.)

—	Covered.	Uncovered.
	lb.	lb.
Fleece wool ..	84·5	86·6
Pieces	43·9	26·0
Bellies	10·6	9·7
Locks	8·7	8·4
Total ..	147·7	130·7

Working back again from this, the average weight of *clean-scoured wool* produced per head is 4·92 lb. for the covered sheep and 4·36 lb. for the uncovered—a difference of 0·56 lb. (instead of 0·69 lb. in the grease). However,

HALLENSTEIN BROS
HB
NEW ZEALAND

Call at your nearest H.B. Store and see the full range of wet-weather clothes.

OUTSTANDING VALUE IN GUM BOOTS

B5024.—**Men's bright finish Black Knee Gums,** white rubber sole and heel, strong cleats on soles and extra reinforced toe cap. **17/6**
A good boot for hard wear.

Also youth's sizes 3 to 6.
No. C8708. **14/6**

Hallensteins

Auckland (2 stores), Wellington (2 stores), Christchurch Dunedin, and in 23 other towns throughout N.Z.

H.B. PAY POSTAGE ON MAIL ORDERS.

468

This Tattoo Brand is 99% sure. It is the only one-eye to-day. Breeders know it is the best. Everybody is using it. R. U.?
THE TOMLINSON TATTOO BRAND CO., LTD., BUCKLAND.

Fig. 4.—One of Mr. Jarman's hoggets, showing the leg-strap fastening on the cover.

Fig. 5.—One of Mr. Paton's hoggets, showing the method of fastening the cover with a rope across the britch.

although the difference is now smaller, it is nevertheless just as significant, because it is on a clean-scoured instead of a greasy basis. (See explanation on page 322.)

Prices.

Mr. Jarman did not keep his rugged and unrugged wool separate when sold, but realized 12d. to 13d. on his main lines, which was well above the market average at the time. There is no doubt that the rugged wool, which showed to great advantage when opened in the store, was responsible for this satisfactory return.

Trial 2.

(Owner, Mr. J. Paton.)

Shearing in this case was about mid-November, and again the same remarks made previously regarding the beneficial effects on the hoggets applied. The effect on the wool was even more noticeable than in the first trial. Nearly every fleece shorn from the uncovered hoggets showed a patch of weathered wool on the back. The size of this patch varied from about that of a man's hand up to an oval 8 in. or 9 in. long in some cases.

The amount of damage done to the wool also varied considerably from just a marked dryness and tenderness to considerable discoloration, with a good deal of pink-rot in evidence and the wool so damaged as to be quite useless

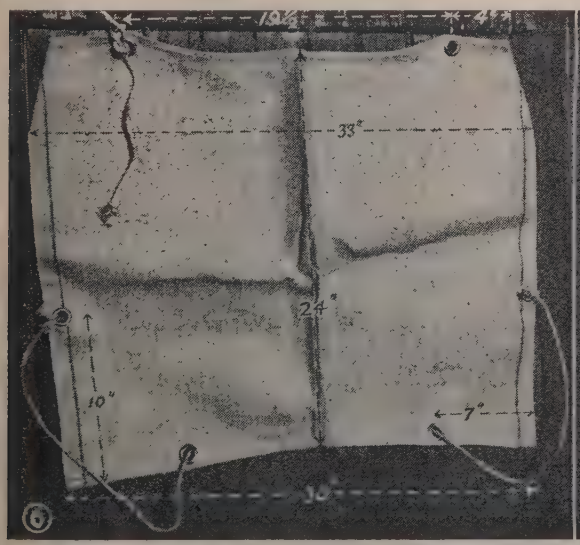


Fig. 6.—One of Mr. Allan's covers, with the dimensions.

Fig. 7.—One of Mr. Paton's covers, with the dimensions. The 1 in. overlap fold at each of the "darts" is shown at A, B, and C. For smaller sheep it would be an advantage to have the eyelets farther in from the edge, as shown at X and Y, to allow a greater range of adjustment.

from a commercial point of view. On the other hand, none of the covered fleeces showed any damage whatsoever, and all were perfectly sound on the backs. This fact must be borne in mind when comparing the weights of the two lots of wool.

TABLE 4.

(Greasy Weights.)

——	Covered.	Uncovered.
	lb.	lb.
Fleece wool ..	132·0	130·5
Pieces	45·0	41·0
Bellies	21·5	21·0
Locks	8·5	8·0
Total ..	207·0	200·5

The difference per head is practically negligible, being 6·90 lb. per head for the covered sheep, and 6·68 lb. for the uncovered sheep—*i.e.*, a difference of only 0·22, or barely ¼ lb., per head.

As a check on Trial 1, I had the samples of wool from Trial 2 scoured commercially in bulk, and although the results are not quite so accurate (for instance, there would still be a *small* amount of residual grease in the wool) the figures obtained for the two lots of wool are quite comparable, as the treatment was identical in each case.

TABLE 5.

(Yields—Clean-scoured.)

——	Covered.	Uncovered.
	Per Cent.	Per Cent.
Fleece wool ..	63·8	64·9
Pieces	56·8	53·7
Bellies	49·8	50·6
Locks	54·1	52·8

Converting the greasy weights given in Table 4 on the basis of these figures gives :—

TABLE 6.

(Clean-scoured Weights.)

——	Covered.	Uncovered.
	lb.	lb.
Fleece wool ..	84·2	84·7
Pieces	25·6	22·0
Bellies	10·7	10·6
Locks	4·6	4·2
Total ..	125·1	121·5

The gross difference on a clean-scoured basis is now reduced to a mere 3·6 lb., and this works out at 0·12 lb., or barely 2 oz., per head in favour of the rugged sheep, which is really too small to be significant, making due allowance for some small experimental errors.

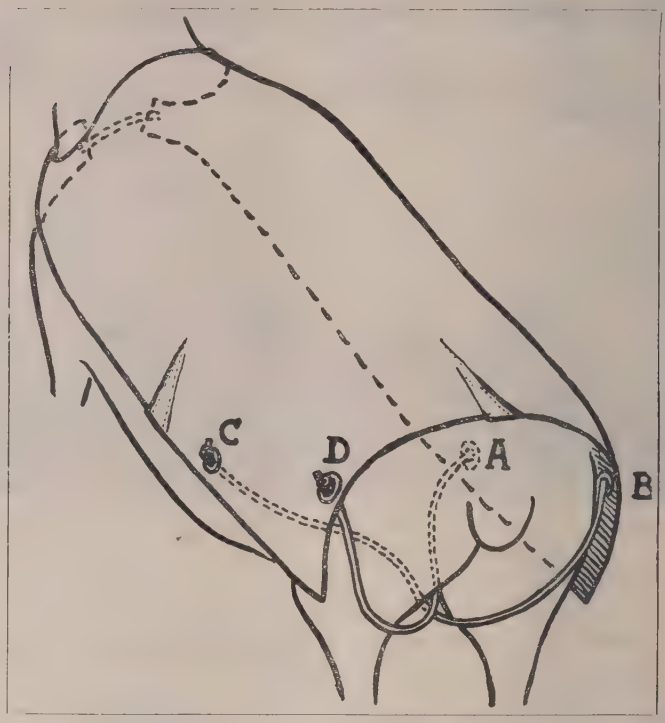


Fig. 8. —Mr. Allan's method of crossing the leg ropes. One rope runs from A to D, and the other from C to B.

Prices.

Although the differences in weight between the rugged and unrugged fleeces were small, this was by no means the case in regard to prices. Mr. Paton was able to sell his covered and uncovered wool in separate lines at the wool sale, obtaining 12¾d. per pound for the covered and 10½d. for the uncovered—a clear gain of 2¼d. per pound in favour of rugging. When these figures are applied to Table 4 (giving the greasy weights) it will be seen that the return from the rugged sheep was 1s. 7½d. per head better than that from the unrugged, the respective figures being 7s. 4d. and 5s. 8½d. per sheep.

Trial 3.

(Owner, Mr. J. Allan)

In this case the trial was carried out on Merino hoggets in the Mackenzie country under very different conditions of climate and feed, the rainfall being lower and the feed much sparser. The trial was done in the same way as the two previous trials, except that twenty-five sheep were taken in each case instead of thirty, and, due to the classing arrangements, the comparison was of whole fleeces (with pieces and bellies left on) with locks as the only oddments treated separately. The results were :—

S. OPPENHEIMER & CO., INC.
(Incorporated in U.S.A. as a Limited Liability Company)
Established 1868 in New York, 1892 in New Zealand.
SAUSAGE CASINGS
Manufacturers and Exporters of New Zealand Casings. Importers of American Hog Casings.
Office: 38-42 The Terrace, WELLINGTON.
P.O. Box 350. Telephone 43-373.

TABLE 7.

(Greasy Weights.)

—	Covered.	Uncovered.
	lb.	lb.
Fleeces	180·0	177·7
Locks	14·8	13·4
Total ..	194·8	191·1

Here again the difference in average weight per head *on a greasy basis* between the two lots is very small indeed (7·79 lb. for covered and 7·64 lb. for uncovered), working out at about 0·15 lb., or only some 2½ oz. When the question of yields is taken into consideration, however, we find a considerable difference. In this case again I took a half-pound sample from each fleece and carefully scoured these individual samples, with the following results :—

Fig. 9.—Some of Mr. Jarman's covered hoggets in the yards.

TABLE 8.

Covered Yields (Per Cent.).				Uncovered Yields (Per Cent.).			
No. of Fleece.	Yield.	No. of Fleece.	Yield.	No. of Fleece.	Yield.	No. of Fleece.	Yield.
1	54·2	14	67·4	1	43·1	14	59·1
2	49·4	15	80·1	2	53·7	15	51·4
3	66·4	16	82·3	3	58·8	16	52·0
4	63·9	17	53·6	4	52·9	17	58·2
5	56·6	18	48·8	5	56·4	18	43·8
6	52·2	19	55·5	6	52·6	19	52·8
7	60·2	20	54·9	7	59·5	20	54·7
8	56·2	21	59·0	8	47·2	21	47·6
9	57·4	22	69·2	9	46·6	22	47·0
10	52·0	23	62·9	10	53·8	23	53·6
11	46·8	24	64·7	11	53·2	24	54·3
12	60·8	25	67·4	12	36·3	25	49·2
13	68·2			13	50·8		
		Average ..	60·4			Average ..	51·5
		Locks ..	36·0			Locks ..	35·7

In this case there is quite a significant difference in yields, and the effect of applying these to the greasy weights in Table 7 is as follows :—

TABLE 9.

(Clean-scoured Weights.)

—	Covered.	Uncovered.
	lb.	lb.
Fleeces	108·7	91·6
Locks	5·3	4·8
Total ..	114·0	96·4

It will thus be seen that *when yield is taken into account* it turns what was an insignificant difference in greasy weights

Mr. H. BASIL JOHNSTON'S ROMNEY RAM, TOP PRICE, FEILDING, 1939.

"Meat & Wool," photo.

SOLD BY DALGETY & COMPANY AT 300 GUINEAS TO Mr. J. H. GALT, INVERCARGILL.

Dalgety & Company, Ltd.

(Incorporated in England.)

STUD STOCK DEPARTMENT.

Our extensive connections throughout Australia and New Zealand enable us to offer a service which is unexcelled.

We have appointed outstanding Stud Stock Agents in South America and in South Africa for promoting the importation of New Zealand Stud Stock to those Countries.

Our London Office is in a position to handle all overseas orders to the best advantage.

Consult us and avail yourself of our services. Competent staffs at all Branches.

Headquarters of Stud Stock Department: Palmerston North.

into quite a significant one on a clean-scoured basis, which is the only true standard of comparison, as will be explained below.

The difference is now no longer a mere 2½ oz. per head, but a matter of 12 oz. (0·7 lb.) per head between the two groups.

Prices.

The difference in yield just mentioned has undoubtedly been partly responsible for the very large difference in price between the rugged and unrugged lines of wool, which were offered separately at the sale and realized 15¼d. and 10¾d. per pound respectively, a gain of no less than 4½d. per pound for the covered wool.

When these prices are applied to the greasy weights in Table 7, the return per head from the rugged sheep was 3s. 0½d. better than that from the unrugged, the figures being 9s. 10¾d. and 6s. 10¼d. respectively.

When assessing the value of greasy wool the first thing the buyer has to consider is how much clean wool it will yield after scouring. To take a similar example to the one above, suppose two fleeces (representing two separate lines of wool) each weigh 10 lb., but that their yields are different, being 60 per cent. and 50 per cent. respectively.

Few farmers are competent to judge differences in yield, and some of them are prone to overlook completely this all-important consideration, so that if greasy wool were selling at an average of 1s. 1d. per pound they might expect the market value of each fleece to be 10s. 10d.

On the other hand, the buyer, who has to be fully conversant with yields, is given orders to buy wool on the basis of, say, 25d. per pound, *clean scoured*. He can work out the price he can afford to pay for wool in the grease by means of the following formula :—

$$\frac{\text{Clean-scoured value} \times \text{yield}}{100} = \text{Greasy value.}$$

(In practice, of course, buyers use ready-reckoners, but they are based on this formula.)

Substituting the known values, we get

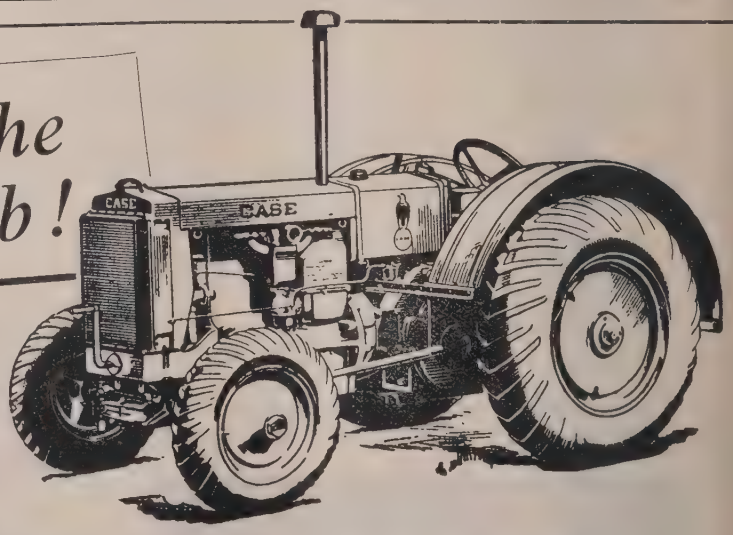
$$\frac{25\text{d.} \times 60}{100} = 15\text{d.}$$

which is the price per pound he can pay for the first line of wool. In the same way the other lot works out at 12½d. Therefore, the two fleeces, although weighing 10 lb. each, are worth 12s. 6d. and 10s. 5d. respectively.

Discussion.

It might seem strange at first sight that in both the trials with Corriedale wool there was comparatively little difference in yield between the covered and uncovered wools, and that in one case it was slightly in favour of one and in the other *vice versa*. This, however, is in line with Australian experience, and I think the most logical explanation is that, although the *total amounts* of extraneous matter were roughly the same, in the case of the uncovered wool the major part of it was dust and dirt, whereas with the covered wool the major part was extra condition or grease in the wool. This theory is further borne out by the appearance of the samples, the rugged wool appearing much cleaner and brighter (see Figs. 1, 2, and 3), and by

Built for the Tough Job!



Meet the "Case" Model "C"—a willing, dependable worker that thrives on tough jobs—a marvel of efficiency—with light compact design, instead of bulk and weight, and faster speeds for doing every kind of field work at lower working costs.

CASE

• MODEL "C" •

SPECIFICATIONS INCLUDE :

Powerful Valve-in-head engine . . . three-bearing crankshaft . . . removable cylinder sleeves . . . full-pressure lubrication . . . sturdy, dust-proof transmission . . . and steel chain drive. The power is available at three points—drawbar, belt and power take-off.

Write for full particulars to your nearest JOHN CHAMBERS BRANCH.

Sole Distributors

JOHN CHAMBERS & SON LTD.

AUCKLAND, WELLINGTON, CHRISTCHURCH, DUNEDIN, INVERCARGILL, HAMILTON, PALMERSTON NORTH, TIMARU, ASHBURTON.

the large amount of fine silt and sand left behind in the bowls after scouring the uncovered wool.

With the Merino wool, where the difference in yield between the two lots was of the order of 10 per cent. the difference in cleanliness between them was even more striking, and there is no doubt that the low yield of the uncovered wool was due to the large amount of fine dust and vegetable matter present.

Summing up, it may be said that two of these three trials have shown a significant gain in the actual weight of clean fibre produced, while the third (Trial No. 2) is inconclusive.

From a quality point of view, all the trials show a very marked improvement in appearance, soundness, and uniformity throughout the length of the staple, and a marked absence of wasty tip (see Figs. 1 and 2) due to rugging, and this is borne out by the very satisfactory prices received for the rugged wool.

Does Rugging Pay?

The next and most important point is—does rugging pay? Personally I think I have quoted ample evidence to show that it does with certain breeds of sheep and under appropriate conditions, such as those described in the foregoing trials.

Nevertheless, the fact that satisfactory results have been obtained under certain conditions does not yet warrant a sweeping statement that rugging would pay with all breeds of sheep under all the varying conditions of climate, topography, and management that are to be found in New Zealand. Further trials will have to be carried out before we are in a position to endorse or contradict such a statement, and I would appreciate it very much if any farmer who is considering the adoption of rugging on a fairly extensive scale would communicate with me if he thinks he may be able to co-operate with the Department in securing a comparison on a scale sufficient to offer separate main lines* of rugged and unrugged wool at the wool sales.

Another point that must be considered in assessing the returns from rugging is that it has been impossible to place a monetary value on the beneficial effect rugging has had on the general health and well-being of the hoggets. Every one who has had anything to do with these trials is agreed that the rugged sheep have benefited, and there certainly has been a reduction in the death-rate among them, but the trouble is how are we to measure these effects, for as one farmer naively put it, "you don't know how many would have died in any case." For the death-rate we can only work on averages over a period of years, and averages are apt to be misleading, particularly when there are large seasonal variations.

Comparison of Body-weights.

One method of getting an indication of the effect of rugging on the general health of the sheep, however, is quite practicable, and that is to compare the body-weights of the two groups over a season: This has already been done on a small scale in Australia with very definite results (see previous article in June, 1938, number of the *New Zealand Journal of Agriculture*), and Mr. D. Sidey, of Canterbury Agricultural College, did some small-scale trials about two years ago and obtained an average difference of some 7 or 8 lb. over the season in favour of the rugged sheep.

This coming season I intend to follow up further rugging trials, including this question of body-weights, and here again I should very much appreciate the co-operation of any farmers, who are contemplating giving rugging a trial, particularly any in the North Island, because so far all the experiments have been confined to the South Island.

It seems that where the increase in weight and/or improvement of wool is sufficient (as it has been in several instances) to pay for the cost of rugging, the improvement in health and reduction in mortality among the sheep is all clear profit. (Incidentally, the life of one hogget saved will pay for at least half a dozen rugs.) If and when rugging becomes more popular mass-production methods will enable cheaper and better rugs to be produced and the margin of profit will be correspondingly greater.

In the two trials where separate prices have been recorded for rugged and unrugged wool it is now possible to assess the gains on a yearly basis, considering only the question of wool and not attempting to place a value on the effect of rugging on the sheep themselves.

In Trial No. 2 the rugs cost 2s. 9d. each, and, allowing an average life of three seasons, the annual cost will be 11d. As stated above, the increased return from wool was 1s. 7½d., which gives a *net* gain of 8½d. per head. This does not take into account the extra labour-cost for attending to the rugs, because it is almost impossible to give any exact figure for this cost, which, however, is quite small and far more than outweighed by the larger return from the improved growth and reduction of mortality among the rugged hoggets.

In Trial No. 3 the rugs cost 2s. each, and allowing an average life of two-and-a-half seasons (the rugs being a lighter quality than in Trial No. 2) the annual cost will be 10d. The increased return from the wool is 3s. 0½d., so that the *net* gain here is 2s. 2½d. per head.

Details of Rugs Used.

Finality has not yet been reached regarding the best type of rug to use, and each farmer has his own definite preferences in this respect, but one or

* A "main line" consists of four bales or more; anything less than this is generally known as a "Star-lot" and would not be included in the main catalogue by itself.

The "PATCHING" Sheep Rug.

Made without Leg Straps, our latest Rug is guaranteed to stay on.

We also have a special design which we recommend for Stud Sheep.

These covers are made in three qualities.

Ask your Stock Agent or write to ...

W. PATCHING, LTD.

West Street :: :: :: ASHBURTON.

two salient facts have already emerged. To give satisfaction a rug must be made of a pliable material (stiff, tarry, waterproof dressings are definitely ruled out), and it must fit the animal reasonably well and have ample scope for adjustment. Types and qualities of materials in use vary greatly, but the better grades are actually more economical in the long run because of their longer useful life.

Very cheap home-made rugs, such as those made from old fertilizer-bags, are not a success, for in spite of their very low first cost they are too soft and open in texture (letting through all the dust and water) and very soon rip and fray, involving endless trouble and labour. It is of interest, however, that there is a possibility of making successful use of such inferior materials after giving them a suitable proofing, and some experiments in this direction are already under way. The general range of prices for rugs is approximately 2s. to 3s. each (when ordered in bulk), and the *annual cost* generally works out at 1s. or a little less per head, as the better-quality rugs will last three seasons.

Fitting the Rugs.

The fit of the rug is important if it is to stay on without much attention, and in covering a mixed line of sheep several sizes of rugs should be ordered and no attempt made to cover all sheep irrespective of size with the same size of rug. The best method of fastening is again a matter of personal opinion. Adjustment by rope-tie, or strap across the brisket is generally satisfactory for the front of the rug, but leg straps and ropes have given a good deal of trouble in one way and another. Either they have chafed the sheep, or, if crossed to prevent this, have soon rubbed through and had to be replaced. In one or two instances with straps a number have been lost through the hoggets chewing them (see previous article). Secure fastenings are essential, because once they come undone the rug hangs loose and is soon torn to ribbons by the sheep trampling it.

In connection with leg straps (or ropes) two suggestions are worth mentioning. Mr. Paton (Trial No. 2) and Mr. Cochrane, of Ashburton, have both done away with leg straps entirely, and depend on a single rope fastened across the britch just under the tail (see Figs. 5 and 7). They are both quite satisfied with this method, as the rugs have stayed on very well, and it has the additional merits of cheapness and simplicity, the rugs being very easily and quickly put on or taken off. The second suggestion is an improved method of crossing the leg ropes used by Mr. Allan (Trial No. 3) with quite successful results. This method is best explained by reference to Fig. 8.

A further point is that rugs should be ample in length in the first place; otherwise they will soon be too small for the sheep and leave a lot of wool on neck and rump uncovered. On the other hand, it is not necessary to have them very wide—in fact, a very wide rug on a small animal is a disadvantage, as it is liable to get caught up in the sheep's legs when it lies down. If the rug comes well over the spring of the animal's ribs it is ample and quite enough to shed the rain.

Further dimensions and particulars of rugs are shown in Figs. 6 and 7.

Acknowledgments.

I wish to place on record my thanks to all the farmers who have willingly co-operated in these trials, to the Massey College authorities, to Commission Wool Scourers, Ltd., Lower Hutt, for the use of scouring-plant, and to Messrs. Grant and Lusk, of the Department of Agriculture, who have rendered me much assistance.

We are the original designers and first to introduce the "Giant" Disc.

"EVONA" GIANT DISC HARROW

Replaces the Plough for rough country!

★ **WRITE for more particulars that will interest you, including names of those who are using similar discs with wonderful results. No obligation at all.**

F.T.F. EVANS & CO.

EVONA IMPLEMENT WORKS,
AUCKLAND, C.1, SOLE MAKERS.

This photograph shows the deep 12 in. cut of the "Giant" which has brought in hundreds of acres of virgin land for many users, working on very steep hillsides. The Evona Giant Disc has also proved marvellously effective on blackberry scrub, ti-tree, tall-fescue, rank paspalum and fern, doing up to 10 acres double cut virgin land in an 8-hour day. Prices range from £36/10/- to £49; made in 8, 10, 12, and 14 blades.

Testing of Purebred Dairy Cows.

Review of the New Zealand Certificate-of-Record System in 1938.

W. M. SINGLETON, Director of the Dairy Division, Wellington.

THE Certificate-of-Record test continues to receive the steady support of breeders of purebred dairy cattle, indicating a definite need for the system. The accumulated benefit to New Zealand dairy-farmers during its twenty-six years of operation has doubtless been considerable and also an important factor in the improvement in average cow production which has taken place.

It is not expected, for several reasons, that C.O.R. entries will ever be made in large numbers. It is essentially a breeder's rather than a dairy-farmer's test, it is an individual cow test rather than a herd test, and is comparatively expensive in both time and money. It is naturally a test for selected individuals, for the reason that breeding is based on selected individuals. Testing fees are comparatively high because of the thorough checks necessary when the country's most valuable animals are bought on their production records. Breeding purebred dairy cows is specialized work of the highest importance.

While it is commonly accepted that the object of testing cows is to ascertain their yield, testing should have far more important objectives than the mere accumulation of production records. It has been said that most people believe that when they keep records of their cows they are testing them, whereas in most cases they are not only testing the cows but testing themselves as managers and feeders. To be of maximum assistance, testing should serve as a guide to feeding and management, as a basis of selection for those superior cows suitable for reproduction of the next generation, and also as an indication of the breeding powers and merit of the bulls in service.

The steady advance in the average production of tested cows and the increasing number of high records indicates that the C.O.R. test is serving a useful purpose, while the knowledge gained has undoubtedly assisted toward raising the New Zealand breeder of purebred dairy cattle to the high standard which he has now achieved.

Manukau Zozo Sylvia. Owned by A. W. Montgomerie, Mangere. 24,086·2 lb. milk, 905·80 lb. fat, in 365 days. Highest first-class C.O.R. Friesian for 1938.

Erinview Adeline, owned by J. Murray, Woodville. C.O.R.: 14,566·9 lb. milk, 864·27 lb. fat, in 365 days. Highest three-year-old Jersey for 1938.

["N.Z. Farmer Weekly" photo.

Evidence of the improvement in average production is afforded by the fact that in 1923—that is to say, fifteen years ago—the average yield of cows qualifying for first-class certificate on the basis of a 365-day test was 468·45 lb. fat, while the corresponding figure for 1938, the year under review, was 504·70 lb. Moreover, 1938 was not a good year, due to unfavourable climatic conditions and partly to the prevalence of facial eczema in some districts, and average production was down 7·98 lb. over the 1937 figure of 512·68 lb. fat.

During the calendar year 1938 first-class certificates-of-record were issued to 569 cows, as compared with 554 cows in 1937, 497 cows being in the yearly test division and the remaining 72 in the 305-day division, the comparative figures for 1937 being 494 and 60 respectively.

1. C.O.R. YEARLY TEST DIVISION.

From the commencement of the C.O.R. system in 1912 to the end of 1938 first-class certificates in the yearly division have been issued to 10,763 cows. This represents an average of 413 cows per year. Subdividing the total into breeds, there were 8,088 Jerseys, 1,889 Friesians, 482 Milking Shorthorns, 224 Ayrshires, 69 Red Polls, 2 Guernseys, and 8 Shorthorns.

Many of these cows were tested more than once, and certificates issued during the twenty-six years total 12,290, Jerseys receiving 9,055, Friesians 2,348, Milking Shorthorns 532, Ayrshires 251, Red Polls 94, Shorthorns 8, and Guernseys 2.

Cyrilla's Twylish Girl. Owned by E. J. Clough, Inglewood. New leader of mature 305-day Jerseys.

Table 1 provides a numerical summary of yearly certificates of the first class issued during the past two calendar years :—

Table 1.

Breed.	1938.			1937.		
	Ordinary.	Repeat.	Total.	Ordinary.	Repeat.	Total.
Jersey	406	28	434	385	44	429
Friesian	33	13	46	49	8	57
Milking Shorthorn	15	1	16	5	1	6
Ayrshire	1	..	1	1	..	1
Shorthorn ..	..	..	..	..	..	..
Red Poll	..	..	..	..	1	1
Totals ..	455	42	497	440	54	494

Second-class Certificates issued.

Eighty second-class certificates were granted during the year under review, Jerseys receiving 65, Friesians 14, and Milking Shorthorns 1. The previous year's total was 101.

Period between Calvings.

The average period between calving for commencement of test and calving subsequent to test for the 497 cows granted first-class certificates in 1938 was 390 days, as compared with 401 days for 494 cows in 1937. The rules governing the testing provide for 455 days, so that the average cow calved approximately nine weeks within the time allowed.

Jerseys.

Class Leaders.

The past year brought one change in the Jersey class leaders. In the senior two-year-olds Messrs. J. and G. W. Dobson's Ashvale Dreaming Stella, with 815·73 lb. fat, supersedes Mr. D. Yandle's Punga Nui Joyce, who gained her certificate on 794·65 lb. fat in the yearly division and 690·13 lb. fat in the 305-day division. Ashvale Dreaming Stella also qualified in the 305-day division, her production for 305 days being 711·51 lb. fat, so that she is the new leader for her class in both divisions of the test. Fuller details of this cow's performance will be found in the *Journal* for August, 1938.

The distinction of being the highest C.O.R. Jersey for the year was won by Mr. E. J. Clough's Cyrilla's Twylish Girl, who, on a test commenced at the age of 11 years 88 days, yielded 1,023·9 lb. fat from the remarkably high milk-production (for the breed) of 19,944·9 lb. This cow also qualified in the 305-day division with 906·15 lb. fat from 17,645·4 lb. milk, and thereby becomes the new leader of the mature class in the 305-day division not only for her own breed, but for all breeds. Her record was made on twice-a-day milking, and for that reason is all the more creditable. Fuller particulars will be found in the February, 1939, number of the *Journal*.

The present Jersey class leaders are as follows :—

Table 2.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butter-fat.
Junior Two-year-old.		Yrs. dys	lb.		lb.	lb.
Beechlands Summer Lass	A. Moreland and Sons, Te Rapa	1 343	275·5	365	15,467·2	899·25
Senior Two-year-old.						
Ashvale Dreaming Stella	J. and G. W. Dobson, Lepperton	2 350	310·5	365	12,689·1	815·73
Three-year-old.						
Ivondale Silver Rainbow	P. J. Petersen, Waitara	3 327	309·7	365	15,073·4	950·63
Four-year-old.						
Woodlands Felicie ..	P. J. Petersen, Waitara	4 364	384·9	365	17,332·6	1,220·89
Mature.						
Holly Oak's Annie ..	W. T. Williams, Pukehou	5 9	350·0	365	18,522·7	1,056·49

Jersey Class Averages.

In 1938, Jersey cows received 434 certificates in the yearly division, as compared with 429 in 1937. The 434 certificates

Take "Time" out of
MILKING TIME.

PATTEN'S
MILKEEZE

Shorten the hours in the bail—increase the milk yield—
Use
Patten's MILKEEZE
For quicker, easier milking.
Thousands of Dairyfarmers throughout the Dominion are praising MILKEEZE—the ideal preparation for sore, wounded teats, and cracked, swollen udders.
MILKEEZE keeps teats soft and supple. Positively does not taint the milk. *From all Chemists and Stores in*
1-lb. tins, 2/3; 4-lb. billies, 6/6; 36-lb. tins, 1/4 per lb.

Ashvale Dreaming Stella. Owned by J. and G. W. Dobson, Lepperton. New leader of senior two-year-old Jerseys.

represented an average production of 497·58 lb. fat, the average for the previous year being 506·83 lb. The averages class by class for 1938 and 1937 are given in Table 3, the noticeable feature of this table being the falling off in both number of entries and average production of the junior two-year-olds.

Table 3.

Class.	Number of Cows.	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
1938.			lb.	lb.
Junior two-year-old	154	349	7,698·8	437·34
Senior two-year-old	57	342	8,477·5	483·38
Three-year-old	73	349	9,209·9	518·75
Four-year-old	53	344	9,136·0	520·04
Mature	97	342	10,172·2	573·35
1937.				
Junior two-year-old	180	348	7,876·0	457·67
Senior two-year-old	55	357	8,243·8	482·29
Three-year-old	59	348	8,929·2	514·90
Four-year-old	38	353	10,092·8	574·58
Mature	97	347	10,363·0	580·53

The average, class by class, of all certificates issued to Jersey cows since the commencement of the C.O.R. test in 1912 are given in Table 4 :—

Table 4.

Class.	Number of Certificates	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
Junior two-year-old	3,614	349	7,315·8	412·91
Senior two-year-old	978	347	7,976·0	452·10
Three-year-old	1,349	347	8,742·9	490·16
Four-year-old	944	348	9,309·7	521·97
Mature	2,170	347	9,658·3	533·05
All	9,055	348	8,369·0	468·81
Average test : 5·6 per cent.				

Jersey C.O.R. Bulls.

The Jersey cows which have received certificates to date are from 3,034 different sires, and of this number 604 have qualified for the C.O.R. bull class. A bull is classified as a C.O.R. bull when he has four or more daughters with first-class certificates, each daughter being from a different dam.

Fifty-one bulls have now qualified for the Jersey Cattle Breeders' Association's champion butterfat bull (C.B.B.) class, the qualifications for this class being as follows : Each bull must have five or more daughters which under first-class C.O.R. conditions have produced 520 lb. butterfat when starting test up to three years of age, 580 lb. when starting between three and four years of age, 640 lb. when starting between four and five years of age, or 700 lb. when five years old or over. It is not necessary for each daughter to be from a different dam. The corresponding standards for cows in the 305-day, test are 460 lb. 510 lb., 560 lb., and 620 lb. butterfat respectively.

Friesians.

Class Leaders.

Although the class-leadership positions for the Friesian breed are held by extremely high producers, odd changes are still taking place, indicating that the limits of production in relation to age have not yet been reached. The latest change, already referred to in the *Journal* for September, 1938, has occurred in the junior two-year-old class, in which Oakview Keyes Trojan, bred by the Oakview Stud Farm, Patumahoe, and owned and tested by Mr. A. W. Montgomerie, of Mangere, Auckland, assumes the leadership. This heifer, with a production of 836·98 lb. fat, displaces Monavale Queen Bess, whose record of 740·5 lb. fat kept her in the leading position for more than seventeen years.

Credit for the highest performance for the year goes to Mr. M. S. Rennie, of Mangere, for his cow Monevale Sylvia Posch Mercena, who yielded 1,000·43 lb. fat from 26,369·1 lb. milk on a test commenced at the age of 7 years 91 days. This, however, was a second-class certificate, as she failed to calve in time for first-class C.O.R.

The Friesian class leaders are now as follows :—

Table 5.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butterfat.
		Yrs. dys	lb.		lb.	lb.
Junior Two-year-old. Oakview Keyes Trojan	A. W. Montgomerie, Mangere	2 131	..	365	22,146·8	836·98
Senior Two-year-old. Pareora Echo Blossom	T. Sheriff, Clandeboye	2 223	262·8	365	22,671·9	819·81
Junior Three-year-old. Monavale Queen Bess	T. H. Richards, Cardiff	3 56	282·6	365	21,609·3	800·18
Senior Three-year-old. Totara C. R. Buttercup	Piri Land Co., Auckland	3 247	336·7	365	25,885·3	989·10
Junior Four-year-old. Totara Veeman Lulu	Piri Land Co., Auckland	4 12	349·7	365	22,364·2	946·78
Senior Four-year-old. Totara C. R. Buttercup	Piri Land Co., Auckland	4 267	375·2	365	27,108·1	1,079·14
Mature. Alcartra Clothilde Pietje	Vernon Marx, Mangatoki	7 355	350·0	365	31,312·5	1,145·24

FRIESIAN CLASS AVERAGES.

Certificates issued to Friesian cows in the yearly division totalled 46, this number being 11 less than for 1937. The average production for 1938 was 563·95 lb. fat, as compared with 559·46 lb. for the previous year. The Friesian class averages for 1938 and 1937 are given in Table 6 :—

Oakview Keyes Trojan. Owned by A. W. Montgomerie, Mangere. New leader of the junior two-year-old Friesians.

Table 6.

Class.	Number of Cows.	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
1938.				
Junior two-year-old	14	343	14,277·9	510·82
Senior two-year-old	5	349	14,140·7	518·05
Junior three-year-old	3	332	12,597·9	584·48
Senior three-year-old	2	365	16,766·6	616·56
Junior four-year-old	4	302	13,914·9	515·39
Senior four-year-old	3	330	15,524·9	528·40
Mature	15	354	16,934·4	637·76
1937.				
Junior two-year-old	18	363	14,203·0	513·36
Senior two-year-old	9	346	13,675·4	499·66
Junior three-year-old	3	365	13,521·5	499·34
Senior three-year-old	7	349	16,484·9	593·49
Junior four-year-old	4	349	17,821·6	653·48
Senior four-year-old	3	346	17,825·8	597·98
Mature	13	355	17,284·4	622·39

The averages, class by class, of all certificates issued to Friesian cows since the commencement of the C.O.R. system in 1912 are given in the following table :—

Table 7.

Class.	Number of Certificates.	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
Junior two-year-old	708	347	12,082·2	429·43
Senior two-year-old	290	348	12,901·2	460·19
Junior three-year-old	204	344	13,602·6	483·66
Senior three-year-old	210	337	14,284·9	513·16
Junior four-year-old	147	344	15,363·2	545·96
Senior four-year-old	148	346	16,247·6	568·15
Mature	641	344	16,278·7	576·47
All..	2,348	345	14,126·1	501·61
Average test : 3·55 per cent.				

Friesian C.O.R. Bulls.

Two new names were added to the Friesian C.O.R. bull list during the year, the total for the breed now being 128. Some 703 sires are represented in the 1934 Friesian cows (including the 305-day division) certificated to the end of 1938.

Milking Shorthorns.

Class Leaders.

The list of Milking Shorthorn class leaders remains as at the end of 1937, no changes having taken place during the year. The distinction of being the highest performer for the year again goes to Allandale Lady Clare, bred and tested by Messrs. R. S. Allan and Sons, of Hatuma, Hawke's Bay. Her first-class C.O.R. for last year was gained on a production of 686·29 lb. fat from 16,326·9 lb. milk, on a test commenced at the age of 6 years 132 days.

Allendale Lady Clare already has a certificate in the mature class for 727·82 lb. fat and another in the senior three-year-old class for 705·93 lb. fat, indicating that she is animal of constitution as well as definite dairy capacity.

The Milking Shorthorn class leaders are as follows :—

Table 8.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butter-Fat.
		Yrs. dys	lb.		lb.	lb.
Junior Two-year-old.						
Matangi Quality 4th ..	Ranstead Bros., Matangi	2 109	251·4	365	14,572·8	591·89
Senior Two-year-old.						
Pinedale Beauty 4th	G. D. Hall and Son, Otorohanga	2 362	311·7	365	13,273·0	580·62
Junior Three-year-old.						
Marangi Quality 4th	Ranstead Bros., Matangi	3 153	292·3	365	16,281·4	678·02
Senior Three-year-old.						
Matangi Ruth 2nd ..	Ranstead Bros., Matangi	3 304	307·4	365	14,032·7	747·86
Junior Four-year-old.						
Matangi Matilda 4th	Hon. Mrs. E. J. Blyth, Kohimarama	4 0	313·5	358	14,640·2	630·38
Senior Four-year-old.						
Ashley Bank Winsome	Peach Bros., Sefton	4 298	378·3	365	17,687·7	730·93
Mature.						
Glenthorpe Lady ..	A. J. Melville, Buckland	Mature	350·0	365	20,136·2	856·85

Milking Shorthorn Class Averages.

The sixteen Milking Shorthorns certificated in 1938 were credited with an average production of 525·34 lb. fat from 12,486·9 lb. milk in an average lactation period of 356 days. The junior two-year-olds, senior two-year-olds, junior three-year-olds, senior three-year-olds, and junior four-year-olds were each represented by one cow, while two cows were in the senior

Moneville Sylvia Posch Mercena, which, in the second-class C.O.R., gained a certificate for 1,000·43 lb. butterfat. She was bred and tested by Mr. M. S. Rennie, of Mangere.

Oxford Lily Grey. Tested by A. H. Gilbert, New Plymouth. C.O.R.: 14,185·0 lb. milk, 851·65 lb. fat, in 365 days. ["*Exporter*" photo.

four-year-old class, the remaining nine being mature. The six cows of the breed granted certificates during the previous year averaged 534·45 lb. butterfat from 13,045·1 lb. milk.

The averages, class by class, of all certificates issued to Milking Shorthorn cows since the commencement of C.O.R. testing for this breed in 1914 are given in the following table :—

Table 9.

Class.	Number of Certificates.	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
Junior two-year-old	59	349	8,440·4	348·46
Senior two-year old	47	350	9,015·3	375·94
Junior three-year-old	30	338	9,772·4	400·98
Senior three-year-old	34	342	10,949·3	455·71
Junior four-year-old	27	350	15,825·5	460·17
Senior four-year-old	37	342	11,548·3	434·55
Mature	298	342	11,915·3	478·01
All	532	344	11,028·3	444·93
Average test : 4·03 per cent.				

Milking Shorthorn C.O.R. Bulls.

Eighteen Milking Shorthorn bulls have now qualified for the C.O.R. list, two new names having been added during the year. A total of 173 sires is represented in the 486 cows of this breed certificated to the end of 1938, cows in the 305-day division being included.

Ayrshires.

Class Leaders.

Only one Ayrshire cow qualified for first-class certificate in 1938. This was Mr. C. C. E. Webb's Greenfields Sunshine, who, on a test commenced at the age of 3 years 254 days, finished her 365 days with the very creditable yield of 13,464·4 lb. milk containing 542·29 lb. fat.

The Ayrshire class leaders are as follows :—

Table 10.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butterfat.
Two-year-old.		Yrs. dys	lb.		lb.	lb.
Fair Maid of Greenbank	W. Moore, Homebush	2 27	243·2	365	12,281·3	673·56
Three-year-old.						
Maesgwyn Victoria ..	C. Morgan Williams, Kaiapoi	3 250	302·5	365	16,507·7	646·98
Four-year-old.						
Ivanhoe Fancy ..	A. M. Weir, Menzies Ferry	4 308	344·3	365	14,207·7	713·93
Mature.						
Floss of Braeside ..	W. Moore, Homebush	7 287	350·0	365	20,305·5	832·72

Ayrshire Class Averages.

The averages, class by class, for all certificates issued to Ayrshire cows since the commencement of C.O.R. testing in 1912 are given in the following table :—

Table 11.

Class.	Number of Certificates.	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
Two-year-old	73	344	8,958·9	372·13
Three-year-old	41	347	10,111·8	416·41
Four-year-old	27	346	11,378·0	459·52
Mature	110	348	11,942·9	485·96
All	251	347	10,715·2	438·65
Average test : 4·09 per cent.				

Ayrshire C.O.R. Bulls.

The one Ayrshire cow certificated in 1938 did not affect the C.O.R. bull list for the breed. The total remains at 13 ; while 129 sires are represented in the 228 Ayrshire cows (including the 305-day division) certificated to the end of 1938.

Red Polls.

No cows of the Red Poll breed were tested during the year. For the information of readers, however, we insert Tables 12 and 13. Table 12 shows the class leaders for the breed, while Table 13 indicates the averages, class by class, for all certificates issued to Red Poll cows since the commencement of C.O.R. testing for this breed in 1918.

SPECIALISED CLEANERS.
CREAM ACIDITY STANDARDISERS.
• •
STERI-CHLOR
for germicidal Rinses.
Wyandotte PRODUCTS
To Ensure High Grade BUTTER *and* CHEESE.
• •
The J. B. FORD Coy. (N.Z.), Ltd.,
20 Brandon Street, Wellington.

Table 12.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butter-fat.
		Yrs. dys	lb.		lb.	lb.
Two-year-old.						
Wayward 6th B No. 1	G. S. Young, West Plains	2 188	259·3	365	11,228·0	511·42
Three-year-old.						
Dominion Gold Top	Central Development Farm, Weraroa	3 302	307·2	365	9,491·25	459·46
Four-year-old.						
Wayward 6th B No. 1	G. S. Young, West Plains	4 297	343·2	365	13,290·0	580·05
Mature.						
Waihou Pip ..	W. Jackson, Waihou	7 25	385·0	365	12,681·8	537·90

Table 13.

Class.	Number of Certificates	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
Two-year-old	43	345	7,575·7	336·72
Three-year-old	17	345	7,920·3	349·95
Four-year-old	8	349	9,806·8	430·72
Mature	26	341	10,501·0	443·67
All	94	344	8,637·0	376·70
Average test: 4·36 per cent.				

Red Poll C.O.R. Bulls.

Twenty-eight different sires are represented in the 70 cows of the breed (including one in the 305-day division) certificated to date.

Totara K.P. Buttercup. Owned by Piri Land Co., Taupiri. Second-class C.O.R. 22,063·4 lb. milk, 807·77 lb. fat, in 365 days. *["N.Z. Farmer Weekly" photo.*

(2) C.O.R. 305-DAY TEST DIVISION.

During the year under review first-class certificates in the 305-day division were issued to 73 cows, 66 going to Jerseys, 6 to Friesians, and 1 to a Milking Shorthorn. In addition, 6 Jerseys and 3 Friesians qualified for second-class certificates in this branch of the C.O.R. test.

Since the 305-day division was introduced in 1930, some 561 cows have qualified for certificates in this division. Of these, 507 were Jerseys, 45 Friesians, 4 Milking Shorthorns, 4 Ayrshires, and 1 Red Poll.

THE LARGEST RENNET FACTORY IN THE WORLD.

Illustrated above is an aerial view of the factory, laboratories, and offices of the N.Z. Co-operative Rennet Co. Ltd., Eltham.

Manufacturers of

N.Z. Cheese Rennet, N.Z. Cheese Colour, Elthamol Veterinary Ointment, Renco Salt Lick, and Renco for Junket.

New Zealand Co-operative Rennet Co. Ltd.

ELTHAM.

Jerseys

Class Leaders.

The past year saw two changes in class leaders, and both cows have already been referred to in these notes and in previous numbers of the *Journal*, as already mentioned. In the senior two-year-old class Messrs. J. and G. W. Dobson's Ashvale Dreaming Stella, with 711·51 lb. fat in 305 days, displaces Mr. D. Yandle's Punga Nui Joyce, with 690·13 lb. fat. As will be seen from Table 14, however, this fine cow still retains the leadership of the junior two-year-old class. In the mature class Mr. E. J. Clough's Cyrilla's Twylish Girl, with 906·15 lb. fat, takes the place of Mr. Truby King's Meon Luculla, whose record was 741·26 lb. fat.

The class leaders are now as follows :—

Table 14.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butter-fat.
		Yrs.dys	lb.		lb.	lb.
Junior Two-year-old.						
Punga Nui Joyce ..	D. Yandle, Te Wera	1 349	250·5	305	10,122·0	590·91
Senior Two-year-old.						
Ashvale Dreaming Stella	J. and G. W. Dobson, Lepperton	2 350	285·5	305	11,317·8	711·51
Three-year-old.						
Pukeroa Wheaten Wafer	F. Geck, Te Kauwhata	3 165	303·5	305	12,853·9	700·76
Four-year-old.						
Hatcliffe Lady Gay ..	H. J. Kaye, Huinga	4 60	329·5	305	10,619·9	664·49
Mature.						
Cyrilla's Twylish Girl	E. J. Clough, Inglewood	11 88	360·0	305	17,645·4	906·15

Jersey Class Averages.

The production averages according to age class of the 66 first-class certificates issued to cows of the Jersey breed in 1938 are given in Table 15. The average for all the cows was 451·51 lb. fat, and the average test 5·57 per cent.

Table 15.

Class.	Number of Cows.	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
Junior two-year-old	23	300	7,287·1	412·67
Senior two-year-old	9	287	8,082·5	428·62
Three-year-old	16	299	7,880·4	436·24
Four-year-old	5	296	8,710·9	505·01
Mature	13	295	9,592·3	534·28

The averages, class by class, of all certificates issued to Jersey cows since the introduction of the 305-day division in 1930 are given in the following table :—

Table 16.

Class.	Number of Cows.	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
Junior two-year-old	207	298	6,680·2	380·34
Senior two-year-old	57	299	8,026·3	436·39
Three-year-old	95	299	8,102·4	449·83
Four-year-old	54	299	8,560·3	484·94
Mature	111	300	9,100·9	496·32
All	524	299	7,788·8	434·38
Average test : 5·57 per cent.				

Friesians.

Class Leaders.

The list of Friesian class leaders remains as at the end of 1937, excepting that for the first time since the introduction of the 305-day division a cow has qualified in the junior four-year-old class and therefore automatically assumes the class-leadership position.

The list of Friesian class leaders is as follows :—

Table 17.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butter-fat.
		Yrs dys	lb.		lb.	lb.
Junior Two-year-old.						
Sealands Magpie Pietertje 2nd	H. G. A. Cameron, Weraroa	2 22	252·7	305	11,727·4	454·16
Senior Two-year-old.						
Rosevale Beauty Posch Griselda	E. H. Watson, Windsor	2 216	272·1	305	12,273·5	468·50
Junior Three-year-old.						
Totara De Kol Nina	Piri Land Co., Auckland	3 117	298·7	305	16,005·9	501·37
Senior Three-year-old.						
Paepaetahi Jewel ..	A. F. Perkins, Taradale	3 354	322·4	305	12,342·7	529·94
Junior Four-year-old.						
Fairburn Princess Pauline	H. Jarden, Hillsborough	4 6	324·1	263	11,443·1	395·68
Senior Four-year-old.						
Ellerlea Aaggie Segis Minto	C. H. Steadman, Pokapu	4 357	359·2	305	15,311·9	557·71
Mature.						
Ellerlea Egie Segis Minto	C. H. Steadman, Pokapu	6 345	360·0	305	16,303·1	650·85

Friesian Class Averages.

The six Friesians which gained certificates during the year were credited with an average production of 443·92 lb. fat from 12,386·3 lb. milk in 296 days.

The averages, class by class, of all certificates issued to Friesian cows since the introduction of the 305-day division are given in the following table :—

Table 18.

Class.	Number of Certificates.	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
Junior two-year-old	20	298	9,979·9	365·97
Senior two-year-old	6	305	10,155·4	373·32
Junior three-year-old	3	300	12,797·2	472·04
Senior three-year-old	4	305	11,502·4	423·39
Junior four-year-old	1	263	11,443·1	395·68
Senior four-year-old	1	305	15,311·9	557·71
Mature	12	296	13,637·1	503·93
All	47	298	113,902·1	418·50
Average test : 3·6 per cent.				

Milking Shorthorns.

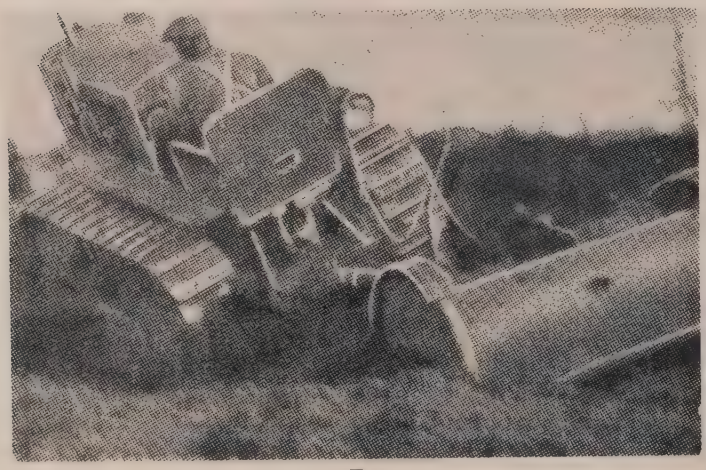
Only one cow of the Milking Shorthorn breed was certificated during the year. This cow, Wilford Grove Jean, owned and tested by Miss Rita Arnold, of Nelson, produced 469·53 lb. fat from 11,489·5 lb. milk in 305 days on a test commenced at the age of 5 years 3 days.

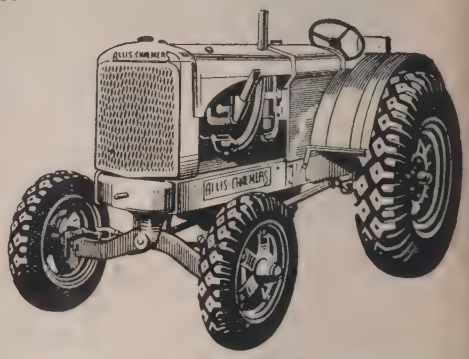
THANKS.

Appreciation for continued courtesy and co-operation is again extended to the secretaries of the various breeders' associations connected with the C.O.R. testing.

Buy on *facts!*

You are invited to make the most searching examination of Allis-Chalmers Tractors. Compare specifications—design—features—equipment—performance. And get the facts about *price*—the Allis-Chalmers "Everyfarm" Model "B", for instance, is approximately £30 below any other rubber-tyred farm tractor on the market. Buy on facts—and we believe you'll decide on Allis-Chalmers.





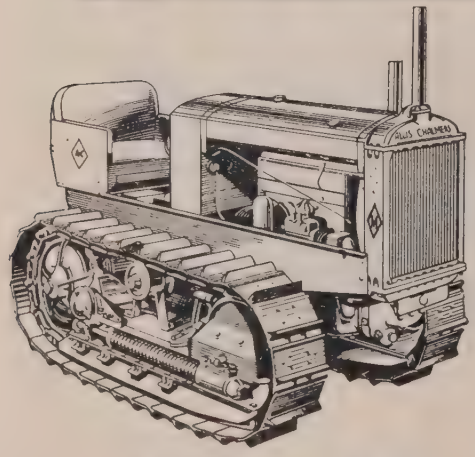
MODEL "W.F." 2-PLOUGH TRACTOR

A fast tractor with four forward speeds—2¼, 3½, 4¾ m.p.h., and road speed of 10 m.p.h. A 23 h.p. tractor that does the work of a six-horse team. Comfortable to drive, easy to handle, turns in short radius. Uses petrol or kerosene. Rear tread may be widened from 46 inches to 57 inches as desired.

£380 With rubber tyres.

£315 With steel wheels.

F.O.R. Main Ports.



MODEL "W.M." CRAWLER TRACTOR.—A tractor of *balanced design*, which means proper co-ordination between the engine and every unit to transmit power developed into useful work. That's why it's called "the most acceptable medium-sized crawler tractor ever built." Drawbar horse-power, 30.98. Four forward speeds, one reverse. Uses petrol or kerosene. 50 inch gauge (or 40 inch). Fitted with belt pulley and power take-off.

£575 With 12-inch grousers.

F.O.R. Main Ports.

Lowest priced rubber-tyred Tractor on the Market.

"EVERYFARM" Model "B."—A quality job, engineered to precision standards and the most modern design in the world. Will plough, cultivate, disc-harrow, drive belt-driven machinery. Replaces four good horses. With rubber tyres, **£210.** With belt pulley and power take-off, **£225.**

F.O.R. Main Ports.

ALLIS-CHALMERS

North Island DISTRIBUTORS : South Island

THE DOMINION MOTORS LTD.
Auckland, Wellington, Hamilton, Wanganui.

ANDREWS AND BEAVEN LTD.
Christchurch, Ashburton, Timaru, Invercargill.

Efficient Utilization of Land.

Is Increased Production Desirable?

R. P. CONNELL, Land Utilization Officer, Fields Division.

(Continued from March issue.)

FROM the facts given in last month's article it is clear that we are not making as much use as could be made of available means to increased production.

The question that immediately arises is whether increased production is worth while. Quite a common contention is that the increased production can, as a rule, be obtained only at such a great cost as to make it more profitable to be content with a lower standard of production; and, in fact, the view recently has been strenuously advanced that we have already reached the peak of production in dairying at least.

Size of Farm Business.

A matter that seems, in general, to receive much less attention than its importance warrants is the influence of size of farm business upon economy of production. In this connection it is of fundamental importance to bear in mind that the size of a farm business is not necessarily or closely correlated with the acreage of the farm. It will be seen from what follows that increasing the size of the farm business is often a desirable objective. Fortunately, increasing the size of the farm business is not identical with increasing the acreage of the farm, otherwise our farming difficulties would be greater than they really are.

The influence of size of farm business upon the farm economy recently was illustrated in an investigation of Hereraunga Plains farming. The investigation embraced dairy-farms, mixed farms, and sheep-farms, all three occurring in reasonably similar proportions in the groups of farms considered. The position disclosed is set out in the following table:—

—	Range on Area, in Acres.	Average Area, in Acres.	Amount available per Acre for Payment of Interest and Management Reward.
			£ s. d.
Group 1	0 to 40	29	0 18 0
Group 2	41 to 80	61	3 18 0
Group 3	81 to 120	95	4 3 0
Group 4	121 to 300	209	3 14 0

The relationship between the size of farm businesses upon the economy of production is discussed in this second and concluding article on efficient land utilization. The writer finds that a great many of our present farms are too small to give fully satisfactory financial results, and he discusses methods by which farm output may be increased.

In the case of 61 per cent. of the farms of Group 1 the amount available for payment of interest and management reward was a negative one. In other words, such farms could pay neither interest nor management reward in the particular year that was studied. In contrast with this, one farm of 36 acres in Group 1 returned £7 2s. an acre for payment of interest and management reward. This farm aptly illustrated that the acreage of the farm does not necessarily determine the size of the farm business; its gross income was £754, while the average gross income for the group was £420.

The three main types of farms in which there are many instances of business units of too small size are:—

1. *Sheep-farms.*—Reliable statistical data relative to these are not known to the writer, but a general acquaintance with any of our leading sheep-farming districts readily brings under notice instances in which the returns of the sheep-farmer are undesirably low because of the small size of the farm business which he is operating.

2. *Mixed Farming.*—Particularly in the arable farming-belt of the eastern coast of the South Island, in which the holdings are of too small a size to admit of their satisfactory economic working. The position is indicated by the fact that of holdings in Canterbury of 30 acres or

"NECA" Veterinary Suppositories.

Registered pursuant to the Stock-Remedies Act, 1934.

For the treatment of Vaginitis and similar infections — And also for Abortion, and Septic Conditions after calving.

"NECA" Suppositories contain two new antiseptics, non-irritating.

We have some fine testimonials for these SUPPOSITORIES. Price 1/6 each or 15/6 dozen. Obtainable from all branches of the Farmers' Co-operative Societies in N.Z., and other merchants also.

Please ask your storekeeper to procure, or write us direct.

Manufactured by TINGEY & HUBBARD, LTD., Chemists, Feilding.

more in area 45 per cent. of them (4,201 farms out of 9,342) are in the 30 acre to 250 acre range in area.

Amount of Arable Work.

The position on a great many of these is acute for the following reason. They are equipped with a team and the usual range of farm implements; if the team is worked to full capacity too much arable work is done, resulting in soil deterioration which the farmer expresses by saying the land is "cropped out" or "worked out." If, on the other hand, the team is not worked to full capacity the arable work that is done becomes, of necessity, loaded with excessive overhead charges and so the work becomes too costly. In certain cases irrigation may give great relief by enabling the size of the business unit to be increased substantially simply by increasing production per acre.

3. *Dairying.*—Dairying is known from the available statistics to be in a markedly weak position in respect to the size of the units being operated.

Slightly more than 50 per cent. of the New Zealand holdings devoted wholly or almost wholly to dairying have herds of 29 cows or less. Of these, the holdings with herds of nine cows or under probably do not warrant a great deal of consideration from the viewpoint of commercial dairying. Many of them exist merely to meet the needs of individual families, and on many others the dairying is merely a sideline on "rurban" holdings ("rurban" being applied by some workers as indicating betwixt and between rural and urban).

Small Dairy-farms.

The holdings associated with herds of 10 cows to 29 cows are much more significant. They number over 10,000, and their average areas according to herd size are—10 to 14 cows, 69 acres; 15 to 19 cows, 83 acres; 20 to 24 cows, 101 acres; and 25 to 29 cows, 103 acres. That they are very dominantly dairying holdings is indicated by the following facts: The average number of sheep shown on the holdings is three, the average number of pigs kept is eight, and the average area in field crops is 2⅛ acres. From this it follows that the dominant source of revenue is butterfat.

Data available from portion of a recent study of dairy-production in the Wellington Province are of interest as an indication of the influence upon cost of production of the size of the farm business. Most of the farmers covered by the study produce liquid milk for human use, but this does not affect the validity of the data as indications of fundamental aspects of dairying management.

The following table shows the relationship disclosed in this study between size of farm business and costs of production: Comparison of costs of production of groups of farms having various sizes of output (costs of group under 5,000 lb. output = 100):—

Range of Butterfat-production.	Number of Farms.	Average Output.	Working-cost.	Interest.	Labour.	Net Cost.
		lb.				
Under 5,000 lb. fat	19	4,292	100	100	100	100
5,000 and under 7,000.. ..	39	6,110	96	109	75	86
7,000 ,, 9,000.. ..	40	8,186	83	111	65	77
9,000 ,, 11,000.. ..	36	9,963	87	118	65	81
11,000 ,, 13,000.. ..	28	12,028	80	99	57	70
13,000 ,, 17,000.. ..	29	14,567	94	108	55	77
17,000 and over..	26	23,225	64	93	42	60

The interpretation of the table may be illustrated as follows: In working-costs, £96 or 96s. spent on farms of 5,000 lb. to 7,000 lb. range of butterfat-production was as effective as £100 or 100s. respectively on farms of under 5,000 lb. butterfat-production. Similarly, £83 spent on farms of 7,000 lb. to 9,000 lb. butterfat-production was as effective as £100 spent on farms of under 5,000 lb. butterfat-production. Likewise, in respect to total net cost, £86 spent on farms of 5,000 lb. to 7,000 lb. range of butterfat-production was as effective as £100 spent on farms of under 5,000 lb. fat-production.

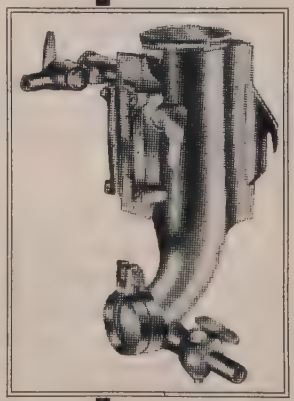
Trend of Labour Costs.

The most striking feature of the table is the general and marked trend downwards in both labour-costs and net cost of production. The trend in working-costs is also downward as the output of butterfat increases, but this trend is not so decisive, or regular, as the others mentioned.

In the same study the influence of size of farm business upon cost of production was strikingly disclosed in another way. The procedure was to compare two groups obtained by taking (1) the thirty farms of lowest net cost of production and (2) the thirty farms of highest net cost of production. The result was:—

FACTS THAT COUNT!

THE principle of THE G.V.B. MILKER—the perfect imitation achieved of a natural, calf-like action—is universally recognised as essential to the cleanest, fastest, and most economical milking methods.



"THE HEART OF THE G.B.V."

THE G.V.B., now established throughout New Zealand, has shown a progressive sales record that is unique—convincing proof of its high standard of efficiency and great and lasting popularity.

YOU CANNOT AFFORD TO MISS THE EARLIEST OPPORTUNITY OF INQUIRING ABOUT THIS WONDER MILKER.

THE
GORDON VACUUM BREAK MILKERS
LIMITED.

Head Office: Lower Albert Street, Auckland.
Branches: Whangarei, Stratford, Hamilton, Palmerston North, Christchurch. Sub-Agents everywhere.

	Butterfat Output, in Pounds.	Average Net Cost, Pence per Pound.
Thirty farms of lowest net cost of production ..	16,877	13,247
Thirty farms of highest net cost of production ..	6,744	23,072

Butterfat per Acre.

One of the ways of increasing the size of the farm business that is very generally available to dairy-farmers is increasing the production of butterfat per acre.

The following table, disclosed by the dairy-farming study already mentioned, shows the relation of production of butterfat per acre to net cost of production, expressed in pence per pound of butterfat: Comparison of costs of production of groups of farms at various levels of fat-production per acre (costs of group under 60 lb. = 100) :—

Group No.	Range of Fat per Acre (lb.).	Number of Farms.	Average Output (lb.)	Working-cost.	Interest.	Labour.	Net Cost.
1	Under 60	12	7,338	100	100	100	100
2	60 and under 90 ..	20	9,198	96	89	88	97
3	90 ,, 120 ..	49	11,049	79	73	78	85
4	120 ,, 150 ..	40	11,855	77	69	72	81
5	150 ,, 180 ..	25	13,616	79	62	69	80
6	180 and over	22	9,912	76	60	71	79

The outstanding feature of the table is the steady trend downward in working-costs, interest-costs, labour-costs, and net cost of production as the production of butterfat per acre increases.

It would be more satisfactory if the upward trend in butterfat per acre were dissociated with the upward trend in output which may be expected, as already shown to be a factor in the downward trend on costs. It is to be noted that in respect to output Group No. 2 and Group No. 6 are comparable and again Group No. 3 and Group No. 4 are comparable, and the comparisons which these pairs of groups provide are illuminating. It is relevant to the table that the average Dominion annual production of butterfat has been assessed as approximately 105 lb. per acre.

Production of Herd.

Another way of increasing the size of the farm business is raising the level of production of the herd. The following table indicates the correlation between the level of herd-production and net cost of production found in the dairy-farming study already mentioned: Comparison of costs of production between groups of farms at various levels of herd average per cow (costs of group under 180 lb. per cow = 100).

Group No.	Range of Fat-production per Cow (lb.).	Number of Farms.	Average Output (lb.).	Working-cost.	Interest.	Labour.	Net Cost
1	Under 180	14	6,065	100	100	100	100
2	180 and under 210 ..	21	9,698	83	95	78	87
3	210 ,, 240 ..	51	9,863	87	91	79	86
4	240 ,, 270 ..	54	10,114	79	78	69	76
5	270 ,, 300 ..	36	12,752	72	70	61	71
6	300 and over	29	14,539	64	64	62	68

This table, while decidedly suggestive, is not as simple and straightforward as the preceding ones. In it, as the average production of fat trends upwards, the net cost of production trends downwards. Some of the trend in cost of production may be attributed to the trend in the size of farm business as indicated by the average output in butterfat. However, Groups No. 2, No. 3, and No. 4 are fairly comparable on the score of output, and hence weight may well be given to the trend which they indicate.

It is of the utmost importance to keep in mind that the three tables which have just been considered are to be viewed as merely trends. To such trends it is to be expected that there will be exceptions provided by individual farms. This is because attention to any one of the factors considered does not by itself ensure farming efficiency. To illustrate the position, a farm business may be of suitable size to give satisfactory economic results and at the same time be run so badly as to give poor financial returns.

Position Summarized.

The preceding survey of the grass-farming position is considered to have provided evidence supporting the following views :—

(1) That recently there has been gratifying expansion in our national top-dressing programme, but that

AS AN INGREDIENT IN THE RATIONS FOR PIGS, CALVES, DAIRY CATTLE, SHEEP, AND POULTRY

there is NOTHING BETTER than

"ECLIPSE" MEAT MEAL

Guaranteed to contain not less than 62 per cent. PROTEIN, it is manufactured by the WET RENDERING Process, and in consequence has the highest biological value of any Meat Meal owing to its greater digestibility.

Manufacturers:

The New Zealand Refrigerating Company Limited.

Head Office: 159 HEREFORD STREET, CHRISTCHURCH.

(Write to us for Free Booklet on the feeding of Meat Meal and Bone Flour to Stock.)

For Deficiency diseases and maladies, use—

"ECLIPSE" STERILIZED BONE FLOUR

which is manufactured from selected Bones, and processed under high steam pressure so that the gluey matter is eliminated and all bacteria effectively destroyed. The product is a fine floury material which makes it easily assimilable by the animal.

there remains very great scope for further profitable expansion in top-dressing.

(2) That the utilization of the better strains of important pasture species is being proceeded with so slowly that it may be said that we are not satisfactorily exploiting the recent advances which have been made in respect to pasture species.

(3) That the downward trend in ensilage is not conducive to efficiency in pasture utilization in major dairying districts, having regard particularly to the fact that the arable forage crop position has been practically stationary during the period under review.

(4) That the size of the farm business is of basic importance as a factor affecting cost of production.

(5) That a great many of our present farms are too small to give fully satisfactory financial results.

(6) That two commonly available means of advantageously increasing the size of farms as business units are (*a*) increasing the production of butterfat per acre, and (*b*) increasing the average production of butterfat per herd.

(7) That true labour economy frequently consists in increasing the farm output, increasing the production per acre, and increasing the average herd-production.

From these views it follows that for many farmers improved financial returns may be brought about by increased top-dressing, improvement of pastures sward, improvement of pasture utilization by such measures as ensilage and better feeding of stock, such as may be obtained by suitably supplementing pastures, by the growing of special crops, or conservation of surplus pasture growth.

Outstanding Feature.

The outstanding feature of the recent investigational work which has been discussed is the direct relationship between labour-costs on the one hand and, on the other hand, size of farm business, production of butterfat per acre, and average herd-production. When the personal reward of labour is constant, decreasing labour-costs necessarily go hand in hand with increasing output of the worker.

It would be difficult to give too much attention to the advisability of measuring the success of farming production in terms of labour. In the words of Van der Post, of South Africa, "Land, man, and capital form the triumvirate of production, but of the three man is the most important." In conformity with this view the richness of a people should be measured not in terms of capital, but in terms of the human factor. A community should beware lest in fostering farming it depart from this ideal. A thickly populated and heavily productive region may be impressive, but it is not necessarily an area of well-being.

Under the conditions investigated the size of the farm business appears as a very potent factor in determining the output of labour per man. In work of land-settlement and land-development it is necessary to pay particular attention to this aspect and to follow a policy which will tend to maintain a high standard of living for the countryside.

The size of the farm business may be increased by the adoption of more

To PROTECT *your* LAMBS *and* HOGGETS
. . . first drench then feed

Protect your young sheep from the dangers of worms and other troubles that are likely to develop in the early stages of their life.

Feed them Moose Nuts for the protein their growing systems require. 2 ozs. daily at a cost of 1¾d. per week will promote growth and keep them healthy.

Obtainable from all stock and station agents and produce merchants.

Prices Reduced.

W. & R. Fletcher (N.Z.) Ltd.,
Box 663, Wellington.

Please send me free literature and ration advice for healthy flocks.

Name . . . . . .

Address . . . . . .

A.J.

MOOSE LINSEED OILCAKE NUTS & MEAL

intensive methods. In much of the world's agriculture the extent to which this can be done economically appears to be much more strictly limited than in much of New Zealand farming. In many parts the adoption of more intensive methods brings about greater production at a greater unit cost of production. In the farm experience reviewed herein more intensive methods have given greater production at a lower unit cost of production. However, it is not shown —and, indeed, it is not expected—that such a result will be always and necessarily obtained.

Increasing the Output.

Under the conditions studied two of the more intensive measures that were found effective in increasing the output per man were :—

(1) Increasing the production per acre.
(2) Increasing the annual average herd-production of butterfat.

Having regard to the national average achievement in respect to both per-acre production and herd-production it is clear there is considerable scope for further application of these measures.

From all this it follows that a farm business which to-day is too small is not irretrievably weak. This is fortunate in view of the substantial number of undesirably small farm businesses.

A third and particularly important possible means of increasing the output per man is the introduction of labour-saving machinery, equipment, and practices. New Zealand dairying has been to the fore in this respect, but it is very doubtful whether we have fully explored the field of labour-saving in our farming. It is, however, acutely desirable that we should do so.

Relevant to this, it is instructive to note that the impressive features of American farming are (1) its large production per man, and (2) the extent to which it has been mechanized. It is considered by Americans, and it seems clear, that there is a direct causal relationship between these two features. One has only to see what mechanization has done and promises to do for irrigation farming in the South Island to have visions of further advantageous mechanization of other branches of our farming.

Mechanization.

In industries other than farming mechanization of an industry tends to govern the possible labour reward. At any rate, the extent of the mechanization of an industry is one of the factors determining the contribution to society of the workers in the industry. If it is accepted that the worker should be rewarded on the basis of his contribution to society, then mechanization of farming, designed to give a greater output per worker, is a ready and direct road to avoiding farm income and standard of living lagging behind those of towns in which mechanization has been of ever-growing importance.

It cannot be questioned that in the past much national progress has been made in farming by focusing attention upon production alone. The matters which have just been discussed lead up to the question whether in the future more emphasis may not well be placed upon the returns per man.

One thing is certain—whether the main objective is made production alone or production per man, the basic means towards attaining that objective is better grassland.

As an indication of what better grassland involves it seems useful to quote one of the "Articles of Belief" of the grass-farming philosopher of Wales, Professor Stapledon : "The proper use of grass is a matter of the right implements, the right fertilizers, and pre-eminently of the right seeds."

MR. DAIRYFARMER!
CAN DECREASING PRODUCTION BE ARRESTED?
Naturally seasonal conditions considerably influence returns, yet only
BALANCE
IN PASTURE TOP-DRESSING CAN GIVE SATISFACTORY RESULTS
YEAR IN — YEAR OUT.
SO —— POTASH IS REQUIRED.
Believe it, or believe it not—in New Zealand for every ton of phosphates applied during 1938, only about 51 lbs. of potash were used! — WAS THIS WISE? WAS IT EVEN SAFE?
REMEMBER THAT BALANCE IS THE MODERN FERTILISING PHILOSOPHY THROUGHOUT THE WORLD.

Certificate-of-Record Testing.

Closing List for 1938.

Contributed by the DAIRY DIVISION.

THE following list completes the publication of production figures for cows qualifying under the Certificate-of-Record system during the calendar year 1938. While, taken as a whole, the list represents a very creditable standard of performance, attention is particularly drawn to the record of "Moneville Sylvia Posch Mercena," which, in the second-class mature Friesians, gained a certificate for 1,000·43 lb. butterfat.

This cow, bred and tested by Mr. M. S. Rennie, of Mangere, has demonstrated her ability for consistently high production by previously having received three first-class certificates, among them being one for 764·09 lb. butterfat as a senior two-year-old, and another for 838·77 lb. butterfat on a record commenced at just over five years of age. Congratulations are extended to Mr. Rennie on his breeding and handling of an outstanding cow.

The list is as follows :—

YEARLY DIVISION.

Jerseys.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Fat.
Junior Two-year-old.		Yrs. dys	lb.		lb.	lb.
Craigavon Bluebell ..	R. L. Barriball, Otaua, Waiuku	2 46	280·1	365	11,573·0	639·56
Glen Oak Dot's Perfection	W. J. Olley and Sons, Ormond	2 29	278·4	365	10,139·7	584·15
Glen Oak Beauty's Ruby	Ditto ..	2 7	276·2	365	8,933·4	533·90
Brookdell Diva Queen	N. M. Colson, Waitoa	1 330	275·5	365	9,481·6	525·33
Premier Orange Blossom	W. Dunn and Sons, Waihou	1 330	275·5	365	7,751·8	505·99
Glenara Miranda ..	A. G. Colson, Bell Block, Taranaki	1 357	275·5	314	7,837·0	500·46
Tauwhare Minx ..	N. M. Colson, Waitoa	2 23	277·8	365	8,770·5	492·05
Helston La France's Elva	J. T. Hill, Bunnythorpe	2 76	283·1	365	9,198·5	489·13
Coniston Gay Buttercup	R. Waterhouse, Takanini	1 264	275·5	365	6,794·0	485·17
Premier Royal Princess	W. Dunn and Sons, Waihou	2 50	280·5	356	8,317·9	482·75
Elmsford Zola ..	D. O. Murray, R.D. Whakatane	2 18	277·3	365	8,129·2	481·67
Glenmore Rosaire ..	T. W. Belfield, Ngarua, Waitoa	1 356	275·5	365	7,918·6	459·48
Waipiko Lovely ..	C. G. C. Dermer, Waipiko	2 81	283·6	365	7,552·6	443·62
Helston Prue Dean ..	J. T. Hill, Bunnythorpe	1 353	275·5	365	7,977·3	442·79
Jerseydale Typist ..	J. Pettigrew ..	2 22	277·7	365	7,341·1	439·96
Reketi Sultana ..	J. E. Laing, Ohinewai	1 354	275·5	365	6,948·5	437·51
Premier Secunda ..	W. Dunn and Sons, Waihou	2 0	275·5	365	6,766·3	434·03
Premier Sweet Repose	Ditto ..	2 0	275·5	317	7,587·2	431·47
Raeburn Medallist ..	J. S. Rae, Taneatua	2 3	275·8	365	7,502·2	427·23
Holly Glen Canadia ..	R. and J. Strugnell, Omokoroa	2 11	276·6	365	8,345·8	423·14
Ngahiwi Crystal Lady	Ditto ..	1 296	275·5	365	7,134·9	417·31
Ngahiwi Financial Gem	..	1 339	275·5	345	6,939·3	414·30
Helston Baby Bunting	J. T. Hill, Bunnythorpe	1 308	275·5	365	7,554·5	412·01

YEARLY DIVISION—*continued*

Jerseys—*continued.*

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Fat.
Junior Two-year-old—continued.		Yrs. dys	lb.		lb.	lb.
Hua Brook Excel ..	A. G. Colson, Bell Block, Taranaki	1 355	275·5	310	7,590·7	401·84
Davaar Leone ..	D. and J. S. Pattison, Kihikihi	1 363	275·5	365	6,673·7	388·83
Fencourt Stylish Lady	R. Wattam, Fencourt, Cambridge	2 3	275·8	303	6,835·6	368·70
Pinewoods Sybil's Gem	Hamlin Bros., Rongotea	2 26	278·1	333	6,494·9	360·80
Silverdale Majesty's Lady	Geo. Hodgson, Whakapara	1 338	275·5	334	6,317·8	358·51
Helston La Frances Frolic	J. T. Hill, Bunnythorpe	1 301	275·5	365	7,524·4	355·37
Premier Royal Lady	W. Dunn and Sons, Waihou	2 46	280·1	365	5,918·0	342·52
Silverdale Royal Rose	Geo. Hodgson, Whakapara	2 6	276·1	318	6,148·3	342·12
Fern Dell Juliet ..	J. S. Rae, Taneatua	1 341	275·5	295	4,830·6	329·37
Toatoa Bluebell ..	W. J. Paul, Opotiki	2 22	277·7	293	5,957·9	328·70
Punawai Denisette ..	V. Le Cren, Fairlie	1 328	275·5	328	5,655·7	317·70
Glen Oak Noble's Choice	W. J. Olley and Sons, Ormond	1 364	275·5	282	5,929·5	301·79
Toatoa Bliss ..	W. J. Paul, Toatoa	2 52	280·7	240	5,695·5	286·57
Senior Two-year-old.						
Waipiko Jolly Maid ..	C. G. C. Dermer, Waipiko	2 337	309·2	365	10,592·7	601·28
Greencroft Marion ..	Mrs. I. Booth, WaharoaR.D.	2 361	311·6	365	9,716·5	542·93
Resure Nova's Experiment	H. S. Fleming, Clevedon	2 363	311·8	365	8,834·4	542·81
Waipiko Jade ..	C. G. C. Dermer, Waipiko	2 364	311·9	365	9,420·3	538·49
Ngahiwi Edna ..	R. and J. Strugnell, Omokoroa	2 332	308·7	299	8,797·2	488·72
Ngahiwi Greta ..	Ditto ..	2 353	286·7	365	7,905·0	474·21
Craigavon Aster ..	R. L. Barriball, Waiuku	2 329	308·4	330	9,086·9	469·80
Raeburn Rainbow's Gleam	J. S. Rae, Taneatua	2 355	311·0	353	7,802·3	466·40
Meon Oried ..	M. N. Trotter, Kati Kati	2 331	308·6	365	8,356·1	461·11
Coniston Sultana ..	R. Waterhouse, Takanini	2 205	296·0	365	5,934·5	410·41
Sunshine Modern Girl	E. D. Johnson, Doyleston	2 355	311·0	303	7,104·4	382·64
Three-year-old.						
Wellfield Daydream ..	W. J. Chynoweth, Waltonn	3 283	340·3	353	11,981·2	673·83
Glenrose Silver Dawn	Misses W. and C. Wright, Redvale	3 57	317·7	365	10,777·2	650·32
Gowanlea Naomi ..	Geo. E. Thorburn, G.P.O., Wanganui	3 354	347·4	365	10,820·6	642·14
Raeburn Golden Tulip	J. S. Rae, Taneatua	3 282	340·2	342	9,406·3	631·16
Craigavon Kathie ..	R. L. Barriball, Otaua, Waiuku	3 340	346·0	365	11,205·5	620·22
Crofton Victress ..	A. J. Luxton, Omata	3 7	312·7	365	8,785·6	619·40
Waipiko Cunita ..	C. G. C. Dermer, Waipiko	3 328	344·8	365	10,504·0	611·86

YEARLY DIVISION—*continued.*

Jerseys—*continued.*

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Fat.
Three-year-old—contd.		Yrs. dys	lb.		lb.	lb.
Coniston Coy Mermaid	R. Waterhouse, Takanini	2 256	337·6	365	10,117·0	605·20
Waipiko Charmina ..	C. G. C. Dermer, Waipiko	3 274	339·4	365	10,577·0	573·05
Elmsford Mavoureen	D. O. Murray, Whakatane	3 89	320·9	365	10,729·1	549·45
Reshure Thelma ..	H. S. Fleming, Clevedon	3 108	322·8	365	8,947·1	507·22
Raeburn Maid of the Mist	J. S. Rae, Taneatua	3 338	345·8	346	8,092·6	495·39
Silverdale Chlorine ..	Geo. Hodgson, Whakapara	3 281	340·1	365	8,809·7	484·02
Raeburn Little Marvel	J. S. Rae, Taneatua	3 264	338·4	361	7,592·4	454·26
Hua Brook Fairy Princess	A. G. Colson, Bell Block	3 64	318·4	305	8,207·1	442·46
Pencarrow Quality ..	J. S. Rae. Taneatua	3 344	346·4	297	8,204·4	436·16
Greencroft Vieux Rose	Mrs. I. Booth, WaharoaR.D.	3 23	314·3	359	8,342·4	422·15
Greencroft Ideal ..	Ditto ..	3 8	312·8	294	5,422·6	334·31
Four-year-old.						
Coniston Coy Fancy ..	R. Waterhouse, Takanini	4 165	365·0	365	12,053·7	738·97
Everton Kara ..	Ditto ..	4 342	382·7	365	11,153·0	639·59
Ngahiwi Modesty Maid	W. J. Olley and Sons, Ormond	4 290	377·5	365	11,088·3	633·93
Elmsford Bridget ..	D. O. Murray, R.D. Whakatane	4 21	350·6	365	9,479·1	594·42
Waipiko Zealosity ..	C. G. C. Dermer Waipiko	4 197	368·2	365	12,167·6	591·42
Oddicombe Bilberry's Gwen	M. N. Trotter, Kati Kati	4 343	382·8	365	10,780·7	589·58
Four-year-old—contd.						
H. O. Standard Lively	R. D. Thomson Tokoroa	4 185	367·0	317	8,187·0	518·53
Raeburn Victoria ..	J. S. Rae, Taneatua	4 325	381·0	346	8,086·9	485·03
Corra Lynn Flora ..	A. Best, Bombay	4 90	357·5	365	8,426·5	442·95
Mature.						
Tarawera Crissie ..	D. O. Murray, Whakatane	9 356	385·0	365	12,811·1	741·32
Tarawera Christobel	Ditto ..	5 23	385·0	365	10,482·5	721·10
Reshure Treasure ..	H. S. Fleming, Clevedon	7 54	385·0	365	10,395·5	688·92
Crestdale Ailsa ..	L. C. Jennins, Lepperton	8 13	385·0	365	10,820·0	672·50
Hua Brook Espinita	A. G. Colson, Bell Block	7 9	385·0	315	11,919·7	656·96
Glenrose Brunette ..	Misses W. and C. Wright, Redvale	6 44	385·0	365	10,895·5	642·33
Tarawera Sunflower ..	D. O. Murray, R.D., Whakatane	5 286	385·0	364	11,675·6	639·32
Tarawera Annette ..	Ditto ..	6 90	385·0	353	10,495·0	622·56
Waitapu Model Sybil	A. G. Colson, Bell Block	8 360	385·0	305	10,693·2	617·42
Tarawera Ruby ..	D. O. Murray, R.D. Whakatane	7 357	385·0	364	11,175·4	613·99
Reshure Diana ..	H. S. Fleming, Clevedon	6 328	385·0	365	10,255·0	609·72
Tarawera Harriet ..	D. O. Murray, R.D. Whakatane	5 14	385·0	365	8,720·5	604·57

Fence for a Lifetime-with JOHNSON'S FENCING WIRE

AUTHENTICATED records of service up to half a century AND OVER—on New Zealand farms, with practically no renewals or replacements—conclusively prove beyond any possible shadow of doubt, the durability of Johnson's Famous English Wire.

What is the secret of Johnson's amazingly long life? The answer is in the special protective galvanizing, by which an extra thick coat of pure spelter is firmly bonded to the wire, adding years and years to its life.

In the so-called "cheap" wire, most of the spelter is wiped off, thus seriously affecting the rust-resisting qualities of the wire. It is therefore false economy buying this "wiped" wire, even though you may save a pound or so on the first cost.

By using "JOHNSON'S WIRE" you make a sound investment and save upkeep costs. All "JOHNSON'S" WIRE carries the New Zealand Government's highest standard specification: TYPE "A" FIRST CLASS GALVANIZING.

Write for Free Copy of "Fencing Facts" to "Johnson's" Agents: P.O. Box 1509, Wellington, or P.O. Box 949, Auckland.

RICHARD JOHNSON & NEPHEW LIMITED

MANCHESTER, R&N ENGLAND.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Fat.
YEARLY DIVISION—*continued.*						
Jerseys—*continued*						
Mature—continued.		Yrs. dys	lb.		lb.	lb.
Silverdale Silver Fern	Geo. Hodgson, Whakapara	6 192	385·0	365	10,657·7	600·38
Silverdale Dolly ..	Ditto ..	6 145	385·0	328	10,335·3	594·23
Brookdell Fortune's Lady	N. M. Colson, Waitoa	5 12	385·0	365	10,903·0	589·44
Bell Bird's Pet ..	Geo. Hodgson, Whakapara	6 267	385·0	365	1,005·0	542·92
Premier Butternut ..	W. Dunn and Sons, Waihou	7 266	385·0	365	9,231·3	542·21
Tarawera Petite ..	D. O. Murray, R.D. Whakatane	5 286	385·0	365	9,606·6	526·03
Mountain Meadows Elf	A. G. Colson, Bell Block	5 346	385·0	309	7,732·4	518·88
Silverdale Foxeline ..	Geo. Hodgson, Whakapara	5 167	385·0	339	8,850·5	512·67
Glenara Venus ..	A. G. Colson, Bell Block	5 35	385·0	304	7,421·7	507·74
Hurden Dairylike Aster	R. and J. Strugnell, Omokoroa	6 340	385·0	365	9,286·8	467·98
Silverdale Rosamond	Geo. Hodgson, Whakapara	7 76	385·0	249	8,247·4	458·85
Waiotama Princess ..	Ditto ..	7 107	385·0	277	7,894·8	449·40
Toatoa Jessica ..	W. J. Paul, Toatoa, Opotiki	6 361	385·0	271	6,783·0	390·10
Friesians.						
Junior Two-year-old.						
Ahikouka Colantha Fobes	C. A. Knutson, Dalefield	1 359	275·5	365	17,041·2	673·38
Sylvia Flora Beets ..	R. Dick, Weston	2 72	282·7	354	12,062·6	432·76
Oakview Keyes Queen	A. W. Montgomerie, Mangere	1 324	275·5	238	10,726·6	380·23
Senior Three-year-old.						
Oakview Echo Segis	A. W. Montgomerie, Mangere	3 328	344·8	365	22,996·3	819·05
Senior Four-year-old.						
Wharepapa Inka Patch	L. S. Gallon, South Carterton	4 362	384·7	262	12,423·9	414·20
Mature.						
Glendale Dutch Ashburn 2nd	A. W. Montgomerie, Mangere	5 145	385·0	365	20,378·6	768·07
Fendalton Burke Posch 4th	Royds and Williams, Five Rivers, Southland	5 47	385·0	362	10,882·1	412·32
Awarima Sylvia Rose 2nd	Ditto ..	5 274	385·0	337	9,780·2	402·63
Milking Shorthorns.						
Junior Two-year-old.						
Pinedale Matchless 3rd	G. D. Hall and Son, Kio Kio	1 348	275·5	365	10,421·2	476·49
Mature.						
Hauruia Cherry ..	A. L. Souter and Sons, Waerenga	7 56	385·0	365	12,638·8	543·99
Hauruia Maisie ..	Ditto ..	6 35	385·0	328	11,606·2	453·99
SECOND CLASS.						
Jerseys.						
Junior Two-year-old.						
Davaar Rainbow Lass	D. and J. S. Pattison, Kihikihi	2 22	277·7	365	8,971·9	540·03
Ngahiwi Demure Ann	R. and J. Strugnell, Omokoroa	1 362	275·5	365	9,369·3	507·16
Ngahiwi Larkspur ..	Ditto ..	2 11	276·6	365	6,749·3	425·79
Jerseydale Marina ..	J. Pettigrew, Pihama	2 10	276·5	365	7,695·0	406·65
Bridge View Dairymaid	A. L. Hooper, Waitara	1 331	275·5	288	7,205·0	392·77
Senior Two-year-old.						
Coniston's Fox's Coy Beauty	R. Waterhouse, Takanini	2 305	306·0	365	8,554·8	578·13
Raeburn Royal Jewel	J. S. Rae, Taneatua	2 264	301·9	365	8,773·5	556·71
Reshure Signet ..	H. S. Fleming, Clevedon	2 325	308·0	365	7,709·5	487·51
Greencroft Peaceful	Mrs. I. Booth, Waharoa	2 360	311·5	365	8,348·6	479·38
Oddicombe Ouida ..	M. N. Trotter, Katikati	2 363	311·8	365	8,224·3	474·21
Three-year-old.						
Waipiko Jenny Wren	C. G. C. Dermer, Cheltenham	3 11	313·1	365	12,424·8	662·50
Reshure Frisky ..	H. S. Fleming, Clevedon	3 64	318·4	365	7,882·5	517·12

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Fat.
YEARLY DIVISION—*continued.*						
SECOND CLASS—*continued.*						
Jerseys—*continued.*						
Three-year-old—contd.		Yrs. dys	lb.		lb.	lb.
Everton Monica ..	R. Waterhouse, Takinini	3 23	314·3	365	8,216·0	489·13
Everly Gipsy Queen ..	Geo. E. Thorburn, G.P.O., Wanganui	3 76	319·6	365	6,920·6	453·39
Netherby Joan ..	J. H. Jordan, Hope, Nelson	3 304	342·4	365	7,380·3	437·62
Four-year-old.						
Elmsford Sea Elf ..	D. O. Murray, R.D. Whakatane	4 11	349·6	365	9,588·4	651·14
Mature.						
Coniston Goldie ..	R. Waterhouse, Takanini	9 48	385·0	365	12,001·1	789·06
Oddicombe Queen Mab	K. I'Anson, Te Puna	9 17	385·0	365	10,921·1	673·86
Tarawera Sunmaid ..	D. O. Murray, R.D. Whakatane	5 324	385·0	365	9,552·6	580·36
Punawai Donce ..	V. Le Cren, Box 51, Fairlie	5 40	385·0	365	9,253·9	535·39
Esther's Unity ..	H. V. Wells, Kiwitahi	9 284	385·0	365	10,532·8	514·42
Springdale Rita ..	H. Wilson, Hastings	8 299	385·0	343	7,614·4	459·24
Friesians.						
Senior Two-year-old.						
Totara Marathon Minty	J. E. Parsons, Pukeroro, R.D.	2 334	308·9	365	13,443·2	600·58
Wescoll Dutch Fairgirl 34th	Wesley College, Paerata	2 310	306·5	365	13,613·2	500·92
Wescoll Mercena D. Belle 34th	Ditto ..	2 260	301·5	365	11,897·5	405·22
Mature.						
Moneville Sylvia Posch Mercena	M. S. Rennie, Mangere	7 91	385·0	365	26,369·1	1,000·43
Fendalton Pansy Posch 3rd	Royds and Williams, Five Rivers, Southland	7 98	385·0	365	13,817·3	647·42
Fendalton Pansy Posch 4th	Ditto ..	6 94	385·0	365	10,458·4	494·47
Milking Shorthorn.						
Mature						
Pinedale Sunshine ..	G. D. Hall and Son, Kio Kio	6 363	385·0	365	13,292·4	577·41
305-DAY DIVISION.						
Jerseys.						
Junior Two-year-old.						
Major's Daffodil ..	E. Wright, Redvale	2 40	254·5	305	7,402·9	433·58
Oaklands Dolores ..	E. T. Brightwell, Kio Kio	1 345	250·5	305	6,090·8	345·26
Dreaming Nan ..	Truby King, Stratford	2 62	256·7	305	4,713·4	278·83
Senior Two-year-old.						
Ideal Trail ..	J. S. Rae, Taneatua	2 311	281·6	305	6,307·7	351·60
Three-year-old.						
Greencroft Rosa ..	Mrs. I. Booth, R.D. Waharoa	3 6	287·6	305	5,866·7	279·92
Greencroft Mayflower	Ditto ..	3 44	291·4	305	6,865·0	379·65
Four-year-old.						
Raeburn Rainbow Lass	J. S. Rae, Taneatua	4 4	323·9	263	6,595·5	393·48
Mature.						
Oaklands Merry Maid	J. E. Laing, Ohinewai	6 125	360·0	267	7,919·2	433·39
Friesian.						
Junior Four-year-old.						
Fairburn Princess Pauline	H. Jarden, Hillsborough	4 6	324·1	263	11,443·1	395·68
SECOND CLASS.						
Jersey.						
Junior Two-year-old.						
Oaklands Glory ..	E. T. Brightwell, Kio Kio	1 352	250·5	305	6,508·0	341·10
Friesian.						
Senior Four-year-old.						
Livingstone Netherland Beets	W. J. Eames, Hunterville	4 327	356·2	305	13,800·9	449·19

Seed-wheat Certification.

Contributed by the FIELDS DIVISION.

THE following is a list of growers whose wheat crops have passed both the field and grain inspections as required under the Government scheme for the certification of seed wheat. The seed from these crops is not recognized as finally certified until it has been satisfactorily machine-dressed and the sacks suitably tagged and sealed. A previous list of growers appeared in the March issue of the *Journal* and further lists will be published later.

Variety.	Grower's Name and Address.	Acreage.
Cross 7	Bisdee, A., Temuka	14
	Coffey, M. M., Temuka	21
	Canterbury Agricultural College, P.B., Christchurch	19
	Dart, J. W. M., Methven	20
	Farr, E. I., Bennetts, North Canterbury ..	16
	France, D. M., Levels, Tycho R.D., Timaru ..	10
	Goss, Jas., Doyleston, Brookside R.D., Leeston ..	6
	Marshall, H. M., Weedons (Line A)	4
	Marshall, J. G., Mount Hutt R.D., Rakaia (Line B)	20
	McCaw, A. C., Hakataramea (Line A)	30
	McCaw, A. C., Hakataramea (Line B)	21
	McCaw, Alex., Estate of Windsor Downs, Haka Valley, Hakataramea	12
	McCaw, J. and F., Hakataramea	28
	Macdonald, C. E., Fairlie	17
	Medlicott, S., Hunter R.D., Waimate	25
	Miles, J., Springbank, R.D.	4
	Stewart Bros., Templeton	10
	Talbot, P. R., Claremont, Timaru	45
	Turton, M. S. (Line B), Ashburton Forks ..	19
S.S. Tuscan ..	Bailey P. V., Springston R.D., Christchurch ..	7
	Banks, W., Prebbleton (Line A)	5
	Campbell, D. D., Chertsey	39
	Gray Bros., Greendale R.D., Christchurch ..	55
	Hunter-Weston, R. P., Albury, Timaru ..	23
	Hurley, H., Balcairn, North Canterbury ..	20
	Hutton, J. S., Darfield R.D.	15
	Johnston, R. H., Dunsandel	15
	Judd, J., Solway, Masterton	24
	Marshall, H. M., Greendale R.D., Weedons (Line A)	25
S.S. Tuscan—*contd.*	Marshall, H. M., Greendale R.D., Weedons (Line B)	5
	Marshall, H. M., Greendale R.D., Weedons (Line C)	5
	Searle, John, Annat	30
	Sheehan, T., St. Andrews, South Canterbury ..	14
	Thompson, G. E., Darfield	10
	Tozer, W. P., Maungati R.D., Timaru	12
	Turton, M. S., Ashburton Forks	60
College Hunters ..	Canterbury Agricultural College, P.B., Christchurch	10
Hunters II ..	Barnett, A. W., Morven, South Canterbury (Line A)	10
	Barnett, A. W., Morven, South Canterbury (Line B)	22
	Bews, J. A., Ngapara	22
	Canterbury Agricultural College (Line B), P.B., Christchurch	18
	Canterbury Seed Co., Leeston, Christchurch ..	30
	Clarke, F. R., Levels, South Canterbury ..	27
	Copland, A. T., Hook, via Waimate	18
	Daly Bros., St. Andrews, South Canterbury ..	32
	Dulieu, H. P., Greenpark	10
	Evans, H., Upper Plain, Masterton	12
	Heald, F. H., Kaiapoi R.D.	4
	Irwin, J. C., Rakaia	14
	Kinnimont, Inchholme, 11D, R.D., Oamaru ..	16
	McKeown, L. J., St. Andrews, South Canterbury	30
	Nicholas, L. G., Hook R.D., Waimate	10
	Power, T. J., Ohoka, Kaiapoi R.D.	10
Dreadnought ..	Blackwater Estate, Box 2, Leeston	12
	Dempsey, J. (Lines A and B), Hook R.D. South Canterbury	70
	Medlicott, S., Waimate R.D.	20
	Saunders, F. L., Studholme	10
	Stevenson, G., Weston, North Otago	20
Jumbuck ..	Allen, J. W., Box 170, Blenheim	11½
	Brown, N., Dunsandel	24
	Kennington, Jas., Okaramio	28
	Kingsbury, M., Wakanui	33
	Nees, C., Okaramio	22
	Orbell, W. H., Levels, South Canterbury ..	6
Sensation ..	Fleming, E. R., St Andrews, South Canterbury ..	8

Absolutely Reliable!

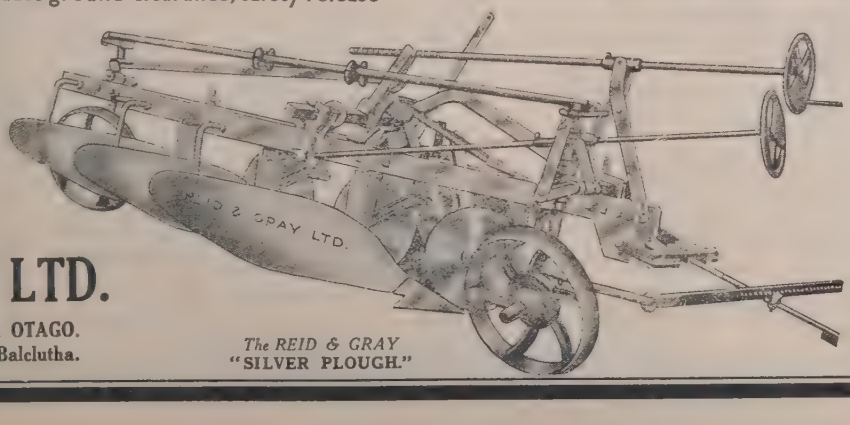
—that's why most Farmers choose the R. & G. "SILVER PLOUGH."

Make the most critical examination of the R. & G. **"Silver Plough."** Compare its features, design, construction, and performance. Note its amazingly low price, representing the best plough value in New Zealand. Built of strong, light, high-tensile steel. In 2-, 3-, or 4-furrow size (2-furrow model being convertible into either 3- or 4-furrow). Many other outstanding features include: Adequate ground-clearance, safety release hitch on drawbar, turning in minimum of space, easy lubrication, etc. See the **"Silver Plough"** to-day, or write for further details

★ ★

AGENTS:

Northland and Auckland: Alfred Buckland & Son, Ltd., Auckland Waikato: A. M. Bisley & Co., Hamilton. Poverty Bay: Williams & Kettle, Ltd., Gisborne. Wellington, Hawkes Bay and Wairarapa: Reid & Gray Agency Co., Ltd., Palmerston North; Levin & Co., Wanganui, Feilding and Masterton. Nelson: Levin & Co., Ltd., Nelson. Marlborough: R. Creswell & Sons, Blenheim. Christchurch, Ashburton, Timaru and Waimate: National Mortgage & Agency Co., Ltd. Oamaru: Ernest Reid & Co.; National Mortgage & Agency Co., Ltd. Otago and Southland: National Mortgage and Agency Co., Ltd.



The REID & GRAY "SILVER PLOUGH."

REID & GRAY, LTD.

Head Office and Works: BURNSIDE, OTAGO.
Branches at: Invercargill, Gore, and Balclutha.

Pig Census Returns.

Analyses of Information Collected.

M. J. SCOTT, Superintendent of the Pig Industry, Department of Agriculture.

ANALYSES of the information collected from 182 farms all over New Zealand have been made and published under different headings in the *Journal* for the last five issues. This one — in which the farms are divided up into (*a*) those who buy less than two pigs per sow (129 farms), and (*b*) those who buy more than two pigs per sow annually (53 farms)—completes the series.

While the information derived from the five preceding analyses tended to confirm the advice and policy that has been stressed by successful pig-raisers and by the advisory service generally, this one, unfortunately, indicates that those who buy fairly extensively have an advantage over those who do not.

Almost without exception experiences of officers of the Department go to show that ailments are, more often than not associated with bought pigs, but against this is the fact that wherever bought pigs are thrifty our officers are not consulted. It must also be true that the man who buys pigs trusts his judgment and exercises it more frequently than the man who does not buy. By this process he always has sufficient pigs to consume his feed-supply without waste and, conversely, by the same judgment process is never overstocked with hungry pigs.

Whatever the explanation, the results of these 182 farms show a slight advantage in favour of the man who buys extensively but until the point is checked up further the Department must adhere to its past advice to owners—*i.e.*, breed your own pigs.

The results are set out as follows :—

	Group A.	Group B.
Number of farms	129	53
Averages of—		
Number of pigs bought per sow	0·3	6·1
Pounds of pig-meat produced per sow	861	1,197
Number of cows per farm	54	56
Number of sows per farm	5·0	3·9
Number of cows per sow	10·8	14·3
Production per sow (number of pigs)—		
Born	13·9	11·8
Bought	0·3	6·1
Sold	10·7	12·1
Died	2·9	3·0
Feed used to produce 100 lb. pig-meat—		
Total (lb.)	774	673
Milk (gallons)	631	597
Meal (lb.)	43	35
Other feed (lb.)	100	41
Average weight of pigs sold (lb.)	80	97
Earning-value of 1 gallon of skim*	0·82d.	0·90d.

* Pork at 6d. per pound, meal at £14 per ton, other feed at £2 10s. per ton; no deduction for labour or overhead.

Slaughterings of Stock.

THE following return of slaughterings of stock at meat-export slaughterhouses and abattoirs for the ten months, May, 1938, to February, 1939, inclusive, has been compiled by the Live-stock Division :—

District.	Cattle.	Calves.	Sheep.	Of which Ewes.	Lambs.	Pigs.
North Island.						
Meat-export slaughterhouses—						
Auckland	113,102	550,934	273,072	154,622	778,992	283,194
Poverty Bay-Hawke's Bay	33,526	39,059	504,699	185,774	1,118,952	30,889
Taranaki-Manawatu	63,385	236,605	278,657	136,588	1,167,941	160,131
Wellington-Wairarapa	25,845	26,030	347,365	104,919	855,927	38,818
Totals	235,858	852,628	1,403,793	581,903	3,921,812	513,032
Abattoirs	96,981	31,395	311,362	180,016	53,379	89,744
North Island totals	332,839	884,023	1,715,155	761,919	3,975,191	602,776
South Island.						
Meat-export slaughterhouses—						
Nelson-Marlborough	268	10,549	21,912	3,371	141,288	10,485
Canterbury	10,549	39,435	362,942	268,358	1,810,003	34,498
Otago-Southland	5,977	44,378	161,109	127,238	1,471,553	4,436
Totals	16,794	94,362	545,963	398,967	3,422,844	49,419
Abattoirs	48,154	12,174	219,198	109,068	33,758	22,510
South Island totals	64,948	106,536	765,161	508,035	3,456,602	71,929
Dominion.						
Meat-export slaughterhouses	252,652	946,990	1,949,756	980,870	7,344,656	562,451
Abattoirs	145,135	43,569	530,560	289,084	87,137	112,254
Grand totals	397,787	990,559	2,480,316	1,269,954	7,431,793	674,705
In addition, the following stock were slaughtered at rural slaughterhouses during the nine months ended 31st December, 1938	64,352	1,606	162,447	Unknown	14,393	21,406
Same period, 1937–38—						
Meat-export slaughterhouses and abattoirs	397,601	1,040,801	2,084,836	1,017,588	7,056,123	756,927
Rural slaughterhouses for nine months ended 31st December, 1937	66,361	1,459	159,577	Unknown	14,746	20,526
Same period, 1936–37—						
Meat-export slaughterhouses and abattoirs	311,418	1,022,977	1,509,177	780,072	6,758,574	709,521
Rural slaughterhouses for nine months ended 31st December, 1936	62,348	1,634	155,353	Unknown	14,813	20,309

The Ruawai flats were subjected to several floods during the past year. In some cases the flood-water was tidal. In the spring the presence of strawberry clover has been widely noted on this area. In fact, in many fields it has produced much more feed than has white clover. Strawberry clover sown in some fields at least twenty-five years ago, and only present in small quantities during recent years, now forms a valuable component of some pastures.

Importation of Agricultural Seeds.

Regulations Governing Introduction from Prohibited Areas.

A. E. MORRISON, Solicitor, Department of Agriculture.

THE purpose of the Stock (Agricultural Seeds) Importation Regulations 1939, made under the Stock Act, 1908, is to revoke the former regulations made under that Act dealing with the importation of agricultural seed from the Commonwealth of Australia, and to substitute fresh regulations in their places.

The regulations define "agricultural seed" to mean the seed of any forage crop, whether a root crop, pulse or forage crop, and to include grass-seed, clover, lucerne, and millet seed, and forbid its introduction into New Zealand from the prohibited area of the Commonwealth of Australia.

The prohibited area means that portion of the Commonwealth of Australia comprising the Northern Territory, the State of Queensland, that portion of the State of Western Australia other than the South-western Division thereof, and a defined portion of the State of New South Wales.

Agricultural seed which is grown in the South-western Division of West Australia and in the non-prohibited portion of New South Wales may be imported into the Dominion provided (1) that the seed is subjected to fumigation by carbon bisulphide of the prescribed strength prior to shipment, (2) that it is accompanied by a declaration made by the consignor as to the place of origin of the seed and by a certificate signed by an officer of the Department of Agriculture of the State where the seed was grown, and (3) that it is refumigated with carbon bisulphide of the prescribed strength on arrival in the Dominion.

Agricultural seed which is grown in the States of Queensland and New South Wales may be introduced into New Zealand for use as cage-bird feed only if the seed is subjected to fumigation by carbon bisulphide of the prescribed strength prior to shipment and is accompanied by the prescribed statutory declaration of the consignor and by a certificate signed by an officer of the Department of Agriculture of the State where the seed was grown. In addition, each package of such seed must be plainly branded "Cage-bird seed."

Seed which is grown in the States of Tasmania, South Australia, and Victoria may be imported into the Dominion provided it is accompanied by a declaration made by the consignor as to the origin of the seed.

The charges payable by an importer for the fumigation of imported seed on arrival in New Zealand are 3s. for the use of the fumigator, 1s. per package of seed where the consignment does not exceed one hundred packages, and, where the number of packages in a consignment exceeds one hundred, 6d. for each additional package.

RELIABILITY • • •

THE

LISTER DIESEL

meets every demand for an engine that, **under any circumstance** is **always ready for immediate use**—without troublesome delay of any sort; that is **entirely reliable** in general operation **under all conditions.**

Practical experience with **over 2,000 New Zealand installations** has demonstrated the unique and outstanding advantages of **"LISTER."** From the **reliability** aspect alone may be mentioned the instantaneous start (by hand) from absolute "cold," without the use of any starting device . . . the entire elimination of any cranking against compression . . . the sweet, effortless running throughout the period required.

LEVIN & CO., LTD.
(MACHINERY DEPARTMENT).
Cr. Featherston and Ballance Streets,
P.O. Box 1496 :: WELLINGTON, C. 1.
(And all Branches). AGENTS EVERYWHERE.

THE LISTER IS YOUR OBVIOUS INVESTMENT FOR THE SEASON AHEAD!

Bobby Calf Marketing Regulations.

A. E. MORRISON, Solicitor, Department of Agriculture.

THE Bobby Calf Marketing Regulations 1939 revoke the Bobby Calf Marketing Regulations 1938, and substitute fresh regulations in their place.

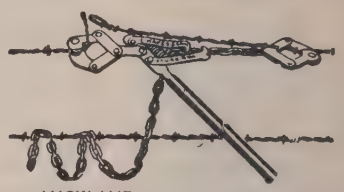
Subject to slight alterations, the regulations repeat the provisions of the former regulations and, in addition, provide that when a pool area is established the Minister of Marketing shall appoint the first Committee for that pool area, but thereafter an annual meeting of producers shall proceed to elect the Committee. The election shall be held on a date to be fixed by the Committee in office, and must be held at some time during the period between the 31st January and the 31st May in each year. Subject, however, to the written consent of the Minister, the meeting may be held later than the 31st May in any year.

Notification of the meeting must be given in two or more newspapers which commonly circulate within the pool area, and in addition this notification shall be given by way of placards posted in a prominent position throughout the area.

The procedure to be followed at the annual meeting of producers within the pool area is laid down in the schedule to the regulations. The regulations provide for the election of a Chairman and the appointment of a Secretary, and define their respective duties.

A further provision requires the Committee to lodge with the Internal Marketing Division of the Primary Products Marketing Department at Wellington not later than the 31st day of March in any year a balance-sheet for the year ending on the 28th February immediately preceding duly audited and certified to be correct by a qualified auditor.

HAYES' AUTOMATIC
SMOOTH-GRIP
WIRE STRAINER
FOR BARBED OR PLAIN WIRE.



From AUCKLAND.

Dear Sirs,—I have been using your Wire Strainer for a number of years; it is the best of them all—the claw-like action is perfect and the wires are firmly held in the smooth grips, and I have come to the conclusion that there is nothing you have missed or left to chance in your perfect Strainer.

(*Signed*) W. DAVID.

Strainer is fitted with a 4 ft. chain and is complete with wire key and directions for use.

Price only **29/6.**

Strainer is stocked by all Merchants.

E. HAYES & SONS,
Manufacturers,
OTUREHUA, OTAGO.

ELECTRIC FENCING . .

YOUR BEST INVESTMENT IS THE ORIGINAL
(COBURN) ELECTRIC FENCE

BECAUSE: It is entirely **reliable.** Operated from a 6-volt battery, the current is sufficient to charge a 10-mile fence for **three to four months,** and under all conditions . . . It can be erected at a **fraction of the cost** of ordinary fencing, and pastures can be changed from time to time at a minimum of trouble and inconvenience. For intensive sub-divisional work it is unrivalled . . . It is singularly **durable.** The Controller is built especially for hard farm usage, and **will last indefinitely.** There are no delicate parts to wear out or replace.

THE "COBURN" IS ABSOLUTELY HARMLESS TO HUMANS OR ANIMALS, BUT WILL EFFECTIVELY KEEP LIVESTOCK WITHIN THE BOUNDS DESIRED. SEND FOR FREE LEAFLET AND ASK FOR A DEMONSTRATION

LEVIN & CO., LTD. (MACHINERY DEPARTMENT). Corner Featherston and Ballance Streets, P.O. Box 1496, WELLINGTON, C. 1.

Veterinary Notes for the Farmer.

Discussions on First-aid Measures.

Contributed by the Live-stock Division.

Non-contagious Skin-diseases of the Horse.

HORSES frequently suffer from diseases of the skin which, when neglected, may lead to serious consequences. It is proposed to discuss briefly some of the more common of the non-contagious forms.

(*1*) *Mud-fever.*

Mud-fever is caused by allowing the legs to become caked with mud and remain in a more or less damp condition. This trouble is more frequent in some localities than in others. If the legs are neglected small pimples form on the skin, and in advanced cases the hair may come off.

Treatment.—The legs should be cleaned with a weak disinfectant and thoroughly dried, and a lotion consisting of lead acetate 2 oz., sulphate of zinc 2 oz., and water 2 pints, should be dabbed on the legs once or twice daily.

(2) *Urticaria, or Nettlerash.*

In this condition, small areas of skin become suddenly raised in patches. Occasionally these patches disappear almost as quickly as they appeared, but they usually persist for some time. Stinging-nettle will produce similar symptoms, hence the name "nettlerash." It is usually caused by errors in diet—*e.g.*, over-feeding and under-exercising. Horses that have been rested over the week-end on a full working diet are always in danger of contracting this trouble.

Treatment.—Treatment is simple, and consists of a change to a laxative diet and a course of Epsom salts for a day or two.

(*3*) *Grease.*

This occurs chiefly among heavy horses, but it is occasionally found in the lighter breeds. It occurs around the sweat glands of the fetlocks and pasterns, sometimes extending up the tendons. There is an increase in the amount of sweat locally, and the skin becomes thickened and gives off a smelly discharge. The legs should be thoroughly cleaned with a strong disinfectant. As this trouble may develop into a serious condition, help should at once be sought.

(*4*) *Warts.*

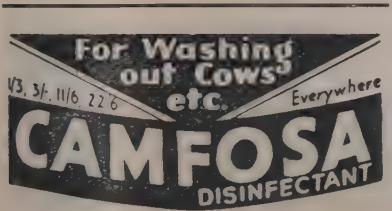
Warts may be found on any part of the body, but the most common places are inside the hind legs, on the sheath, and around the lips. They do not cause any inconvenience except when in a position that permits of chafing. They sometimes disappear without any treatment. If they are very numerous and persist, those that have a distinct neck can be removed by tying a piece of silk thread tightly round the neck. The wart will then fall off in a few days. If there is no neck to the warts, careful application of a caustic pencil will remove them.

(*5*) *Cracked Heels.*

The cause of cracked heels is somewhat obscure. It may be due to parasites or micro-organisms. Preventive treatment is the most important, for if the trouble is neglected and allowed to become chronic, curative treatment then presents the greatest difficulty. Heels, therefore, should at all times be kept thoroughly dry, and if the condition appears the heels should be cleaned with a weak disinfectant, thoroughly dried, and then zinc ointment applied.

Advisory Service on Veterinary Matters.

Farmers are invited to submit inquiries connected with the health of their stock, and the replies will be published under this heading.



REGISTRATION OF DAIRY FACTORY MANAGERS.

Intending applicants are hereby notified that applications for registration under the Dairy Factory Managers' Regulations should reach the Registrar, Factory Managers' Registration Board, C/o. Department of Agriculture, Private Bag, Wellington, on or before 1st May, 1939. Forms are available from the Registrar.

Attention is drawn to the fact that under the Regulations any application which is received by the Board after the 1st May, shall not, except in special circumstances, be considered by the Board until after 1st May, 1940.

H. G. PHILPOTT,
Registrar.

Lice on Horses.

OF the diseases affecting the skin of horses probably the most common is that produced by infestation with lice. In these short notes it is unnecessary to state the names of the three species of lice which the horse may harbour, or which one is of chief importance, as the treatment is similar for all.

Lice may attack a horse at any period of the year, but during the winter they breed more rapidly and are seen in greater numbers. During the spring, when the long coat is shed, the condition becomes less troublesome. Long, dirty coats and lack of grooming are conditions which are favourable for the multiplication of the parasites.

Horses in any condition may become infested with lice, although it is a common belief that animals in poor condition are more subject to infestation. The fact that the severe skin irritation produced by the presence of lice and the restlessness caused by their activity leads to loss of condition probably explains the general impression that only poor-conditioned animals suffer as a result of the parasites.

Suitable Dressing.

In attempting to get rid of lice on horses the selection of a suitable dressing is very important, but the success or otherwise of the treatment depends on the manner in which the dressing is applied.

In treating a horse for lice it is necessary that the material used should come in contact with every part of the skin, otherwise reinfestation will take place from the areas which have been left untreated.

The treatment does not end after the horse has been thoroughly dressed, a second application has to be performed within ten days in order to kill any lice which have hatched out of eggs not destroyed by the first dressing. Further, horse-covers or harness which have been used on infested horses have to be disinfected.

Posts on which affected animals may have rubbed or other objects, such as feed-boxes, edges of mangers, &c., where the lice may take refuge, may lead to reinfestation if they are not properly disinfected.

The horse should be clipped all over before dressing is applied to the skin. The hair removed should be collected and burned, and a suitable day should be selected for dressing.

Suggested Treatment.

The following treatment, if carefully carried out, should give good results: Kerosene, 1 pint; soap, 1 lb.; water, 1 gallon.

Boil the soap and water together until the soap is dissolved, and then add the kerosene. Mix thoroughly, or, better still, put the mixture through a spray pump from one bucket to another to ensure that the kerosene is thoroughly emulsified. Then dilute by the addition of water so that the mixture, when ready

HERE IS THE IDEAL DRENCH!

THE BLUE CROSS COW DRENCH is a scientific preparation, based on practical veterinary knowledge and experience . . . It goes straight to the fourth stomach and works BACK through the system, cleansing away all impurities, and imparting a high tonic effect, without causing the severe purging that is so dangerous, particularly in the case of an animal in weakened condition.

The DRENCH is a wonderful help at calving time. In the case of an unthrifty cow, the response is immediate: while the remedy is invaluable for chill, hard quarter, ropey milk, scouring, or kindred ailment.

PRICE: (In airtight tins) containing about 30 drenches per tin, £1-7-6; 15 drenches, 14/6; 7 drenches, 8/-. In packets, per dozen, 17/6. (These prices do not include freight.)

★ **IMPORTANT:** All Blue Cross Remedies are made to formulae tried and tested UNDER NEW ZEALAND CONDITIONS, and are registered under The Stock Remedies' Act. Send for List.

RING
PROPRIETARY CO., LTD.
WYNDHAM ST., AUCKLAND

for use, amounts to 4 gallons. When cool enough, scrub the emulsion so formed into the hair with a dandy brush, care being taken that the dressing gets down on to the skin.

Dressing should be repeated within ten days to kill any lice which have hatched out of eggs which are not destroyed by the first application. During the dressing the emulsion should be stirred frequently to prevent the kerosene from separating out. If this should happen there is a possibility of taking the hair off the horse.

If a cover has been used on the horse it should be soaked in strong dip and hung out in the air to dry; this is done in order to kill any lice which may be present in the cover or have burrowed into the lining. This is a point which is often overlooked in the treatment of horses for lice and one which, if neglected, may lead to reinfestation of the animal. The treatment with the soap-kerosene-emulsion will be found equally satisfactory in the eradication of lice from cattle.

Ringworm in Cattle.

ONE of the skin-diseases frequently encountered among our domestic animals is that known as ringworm. Although the disease may attack man or any of the domestic animals it is most commonly seen among cattle, the condition being most prevalent among young stock, such as calves and yearlings, and in cattle in poor condition.

Ringworm is a contagious disease. Animals become infected by direct contact with others suffering from the disease or indirectly from contaminated shelters, bedding, or posts against which infected animals have rubbed themselves. The spread among animals is gradual, but it is much more rapid if a number are confined in a single pen.

In affected animals patches of various size may make their appearance on any part of the skin. The most common area for the lesions to develop is on the skin around the eyes and ears, but similar patches are frequently seen on the skin of the neck. The surface of the skin on these patches is greyish in colour and presents a dry scaly appearance.

The cause of ringworm is a variety of fungus which lodges round the hair roots, the hairs becoming brittle and breaking off. The irritation brought about by this parasite produces a thickened and wrinkled condition of the skin on affected areas.

Many remedies are used in the treatment of ringworm, but before any of these are applied the skin should be thoroughly washed with warm water, soap, and washing-soda, and the scabs scraped off. This is done with the object of allowing the dressing to come in contact with the causal parasite. After removal of the scabs each patch should be dressed with tincture of iodine applied with a stiff brush, making sure that every patch is thoroughly dressed. The treatment should be repeated twice at intervals of five days.

Immediately after handling animals affected with ringworm or dressing the skin the attendant should thoroughly wash and disinfect his hands, being careful that he does not touch any other part of his skin before this has been done. If this precaution is not carried out there is a considerable risk that he may contract the disease.

Answers to Inquiries.

Foot-rot in Cows.

O. W. (HOKIANGA) :—

Can you tell me how I might cure my cows of foot-rot? I have a good many that have it. Some are very bad cases; their toes are long and they are very lame. We have tried washing their hoofs with the hose and then pouring kerosene on them, but it cures only a few.

Also, this year my cows are crazy about chewing pieces of wood and stone. Can you give me an idea as to what they are in need of that they do this?

Live-stock Division :—

Foot-rot in cows, apart from that caused by tall fescue, is due to the entrance of germs through small injuries. These germs are present in rotting material, such as cow dung, &c., around the milking-shed, and when a large number of cows are affected the main thing is to find out where they are injuring their feet—prevention is better than cure. Stones, tea-tree stumps, broken fascines, wire, nails, old tins, &c., are all to be considered, and, in addition, the surroundings of the cow-shed should be thoroughly cleared up.

As soon as a cow is noticed to be slightly lame the foot should be washed and the small injury sought for. When found, it can be cauterized with spirits of salts or neat liquid sheep-dip. Bad cases are difficult to cure, but soaking the foot in warm water and disinfectant helps to bring about sloughing of the diseased portion. It is not advisable to squeeze or lance the swollen parts, and when sloughing occurs the animal is greatly relieved.

After the "core" has come out bluestone ½ oz. to a pint of water can be applied to the granulating tissues, followed by a dressing of stockholm tar. Cows with the disease are better kept in a clean paddock away from the shed if this is practicable.

Regarding the cows chewing wood and stones, this is considered to be due to a phosphatic deficiency, and is to be remedied by top-dressing with suitable manures. In the meantime give the cows a "lick" composed of two parts of steamed bone-flour and one part of agriculture salt.

Symptoms of Pleurisy.

MRS. J. S. (AVONDALE SOUTH) :—

I have a little pig about three months old which became sick very suddenly. It breathed heavily through its nose at first, but although that seems to be all right now it keeps in its house and will not eat. We gave it half a packet of salts last night in a little milk, but it is no better this morning. Can you tell me what to do?

I also have another pig the same age. We were ringing it, and it got up limping. Its back leg seemed as if it could be moved in any way, and it does not seem to like putting the leg on the ground. The leg swelled up a little just by the knee. We bandaged it up tightly and bathed it with cold water, but it is no better.

Live-stock Division :—

The first animal is suffering from pleurisy. This disease is inflammation of the pleura—that is, the membrane or skin covering the inside of the chest walls and also the lungs. The commonest cause is a chill, especially if the animal has been overheated and has then lain in a draught. Factors lowering the vitality, such as constipation or scours, poor housing, lack of shelter, dirt, and overcrowding all play their part in lowering the resistance.

The symptoms are cough, discharge from the nose, and watering at the eyes, together with hurried, jerky breathing. In the action of breathing the chest appears to be fixed as far as possible and the breathing to be carried out almost entirely by the muscles of the abdomen. Condition may be lost, and death occurs. Occasionally, pigs up to the heavy porker stage are affected.

The trouble should be treated by isolating the affected pigs, and by feeding a laxative diet, including molasses, and giving a teaspoonful of cod-liver oil daily in milk to each pig. The pig should be provided with a good bed of straw or hay in a well-ventilated house. This is important.

In respect to the lame pig, it would seem that, as the pig was normal before ringing, the leg was wrenched or twisted during the operation through careless handling, such as would happen when a pig is caught by the hind leg. In fact, it would be quite easy to dislocate the leg, which would account for the swelling.

❖ ❖ ❖

Farm Practice and Management.

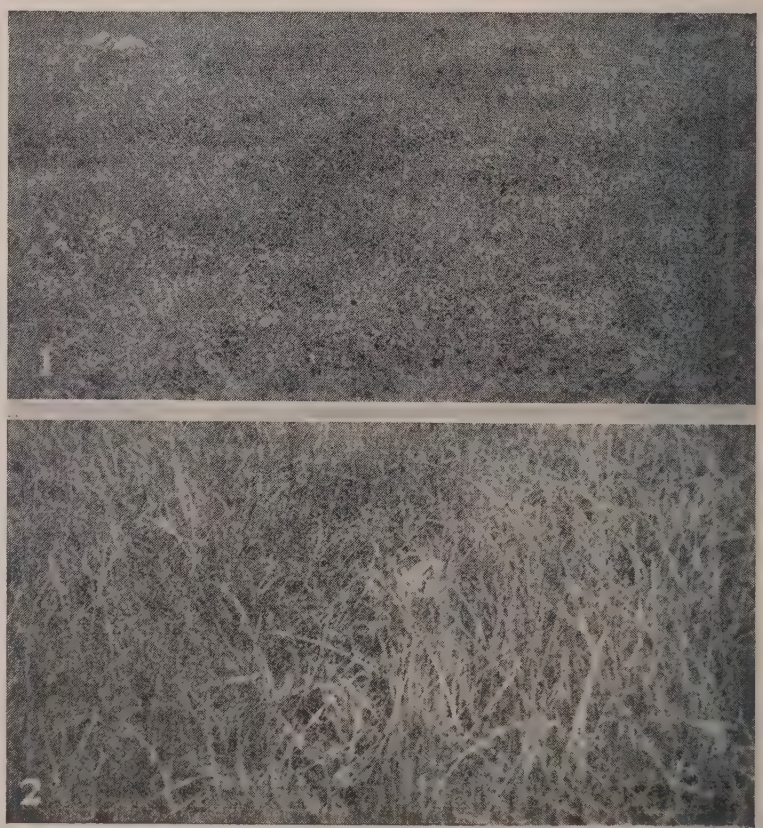
Contributed by Officers of the Fields Division.

Value of Floating Sweet-grass Sward.

FLOATING sweet-grass (*Glyceria fluitans*) is not a very aggressive grass and does not compete to any extent with rushes or other vigorous swamp growth, but, once it is established and grazed by stock, rushes, flax, or blackberry have little chance of invasion of a *Glyceria fluitans* sward.

Figure 1 shows a swamp where the water lies in the spring up to 2 ft. deep. At that time of the year the water has receded from much of the area, where, however, the soil is still very wet. The soil in the swamp is alluvial and rich, but on the country surrounding the swamp the soil is a thin layer overlying volcanic rocks. Such a soil is fertile but, like all fertile soils, requires an adequate supply of moisture to produce. After a week or two of fine weather the grasses go brown and the clovers die. Production can be depended on only from April to November.

On the other hand, two grasses which are suited to wet conditions and which maintain production when the pastures on the higher ground have ceased growth are growing on the swamp. These two grasses are *Poa trivialis* and *Glyceria fluitans*. In the less-wet portion of the swamp the pasture comprises mainly *Glyceria fluitans* or, as it is commonly called, floating sweet-grass, with a sprinkling of *Poa trivialis*, but where the water covers the soil in the spring there is no *Poa trivialis* and only a pure sward of floating sweet-grass, which is shown in the close-up photo in Fig. 2. On this swamp *Poa trivialis* is of little importance as far as production is concerned.



Best in Alluvial Soils.

Floating sweet-grass grows best in alluvial soils beside running streams which are flooded in winter 1 ft. or so deep. It will not live where the water lies for long periods much deeper than 2 ft. It is not dormant in winter, when it lives with trailing stems moving to and fro with the flow of the water and with the leaves floating canoe-like on the surface.

In the late spring and summer, when the water has disappeared or almost gone, it assumes the upright type of growth shown in Fig. 1 and 2, throwing a considerable amount of very palatable fodder. It produces a flower-stem and sets seed, upon which it depends for

reproduction. The flower-stems may be seen in Fig. 2. In winter stock will wade up to their bellies to pick mouthfuls of the grass.

Its winter production, however, is infinitesimal compared with the summer production, which, again, is not as great as that from the much more vigorous swamp grasses capable of living in deep water, notably that of *Glyceria aquatica*.

Glyceria fluitans is a common weed in drains, where, because of its liability to cause blockage, it is a nuisance. Other swamp grasses also have this defect, and careful consideration should be given before attempting to establish them in or near drains.

—J. E. Bell, Instructor in Agriculture, Auckland.

Kikuyu Grass on West Coast.

SOME years ago a settler on the coastal strip north of Westport introduced kikuyu grass from Australia. Since then it has been propagated from cuttings from various places for some miles along the coast and is proving of great value to farmers.

On pure sand, and even on the washed shingle of dredge tailings, it has taken hold, and it soon provides a dense cover. It is valuable feed on the hills, and when planted on raw clay slips has spread rapidly. In such situations its combination of feed value and soil-binding properties would be hard to equal. All classes of stock appear to thrive on it, cows milk well, sheep graze it close in preference to other grasses, and pigs show the same preference.

Those farmers on whose property it is growing rate it higher than paspalum, as the kikuyu has a longer period of growth, being earlier in the season and maintaining growth later, while it stands up better to grazing and treading, and has proved resistant to grass-grub in the occasional years in which the pest has been in evidence. One great disability of the grass, however, is its failure to withstand frost, which limits its use in this district practically to the coastal strip north of Westport.

—A. D. Mercer, Fields Instructor, Greymouth.

A Handy Style.

NOT infrequently a farm track crosses a fence-line at some point where no gate has been provided. Constant climbing over wires soon loosens and weakens the fence.

A simple and effective style can be made with little trouble by halving an old drum and using both ends as stepping blocks. A sack thrown over the top barbed wire adds greatly to the efficiency and utility of this style.

—D. M. E. Merry, Instructor in Agriculture, Nelson.

Another UNSOLICITED TESTIMONIAL *for*

GIESEN'S SHEEP DRENCH

Manager,
Premier Products Ltd.,
WELLINGTON.

RIVERSDALE,
Southland.
15/3/39.

Dear Sir.

I have had a number of years' experience with drenches, and find your Giesen's Drench superior to them all.

I was managing Fairplace Estate for the past 16 years . . . A man named _____ was worried about his lambs; they were losing condition and dying. He asked me what drench I was using, so I recommended Giesen's with the result that his lambs stopped dying and went away fat, while his ewe lambs came through the winter splendidly. The trouble with most farmers is that they leave the dosing too late. We dosed at weaning time, and previously on the mothers, and periodically through the winter.

(Sgd.) J. L_____.

(ORIGINAL LETTER ON OUR FILES)

A MOST ECONOMICAL GENERAL PURPOSE SHEEP DRENCH . . . SPECIFY AND INSIST ON GIESEN'S.

Non-poisonous—does not upset the digestive organs. Can be given with perfect safety to sheep of any age or condition. Highly effective against stomach and blood-sucking worms —also intestinal worms. Requires no mixing—no starving before or after drenching. (Supplied in ½ gal. and 1 gal. tins.) PRICE: 12/6 and 21/-. 1 GAL. DOSES 900 LAMBS OR 450 SHEEP.

Also Manufacturers of

KARTET—DOUBLE-STRENGTH CARBON TETRACHLORIDE SHEEP DRENCH. (Definitely one of the highest quality and cheapest Carbon Tetrachloride Drenches available), and the well-known SUTTON'S NICOTINE BLUESTONE DRENCH, as recommended by N.Z. Department of Agriculture.

USE SAYERS DRENCHING EQUIPMENT—NEW IMPROVED MODELS NOW AVAILABLE.

Agents Everywhere, or obtain through any Stock and Station Agent.

New Zealand Manufacturers and Distributors: PREMIER PRODUCTS LTD., Huddart Parker Building, WELLINGTON.

Write to us for further details, or if in any difficulty in obtaining supplies.

Orchard Harness or Sweep Harness.

HARNESS which includes the use of swingle-trees is often a bugbear to the farmer through the horse stepping on the tree when backed.

In the operation of hay and silage sweeps, in the intercultivation of crops sown in rows, and for work in the orchard swingle-trees may be eliminated by using a special harness usually called "orchard harness" (Fig. 1).

As this harness can be made at little cost, a description of it is given.

It consists of an iron breeching, which acts as a swingle-tree as well as a breeching, two chains, and a spider to hold the breeching in place (Fig. 2).

The frame can be made by the local blacksmith from a length of 2½ in. by ⅜ in. flat iron with a piece of 1 in. round iron welded to each end. The ends of the round iron should be fitted with eyes to take S hooks or split links.

The measurements are: Eye to eye, 27 in.; depth, 19 in.

Small eyebolts on each side 10 in. back from the main eyes should be fitted so that the spring hooks on the end of the spider may be clipped to the breeching. About five or seven holes should be bored in the back of the breeching to take the shackle and allow for off-setting the draught (Fig. 3).

Old belting can well be used for the spider. Coupled with spring hooks and riveted to a large ring in the centre, it becomes a very excellent piece of equipment. For a medium draught horse the rear straps should be 26 in. and the front straps 41 in. (Fig. 2).

The chains should be about 61 in. long, including four or five links large enough to fit on the hame-hooks.

—*M. J. Campbell, Assistant Manager, Ruakura Farm.*

Construction of Farm Loose-box.

The loose-box at Ruakura Farm.

[E. R. Marryatt, photo.

FOR the proper care and comfort of sick animals on a general farm a well-constructed loose-box is one of the essential buildings. Usually such a building is utilized for housing a sick horse, mare and foal, a sick cow, or occasionally the stallion.

The construction and size of the building will depend on financial circumstances and on requirements, but climatic conditions must by no means be overlooked. The concrete floor, while most generally used in New Zealand, has certain disadvantages; it is rather cold in winter and rather severe on the leg joints of the animals.

If supplied in sufficient quantities, straw bedding will, however, relieve this discomfort, but care will have to be exercised to see that the bedding is frequently changed. A wooden floor composed of jarrah blocks set in bitumen is an improvement on concrete, as it is warmer in winter, requires less bedding, and is easier on the leg joints of the animals.

Good ventilation is necessary in all circumstances, and must be provided by a system of louvres in the walls and an efficient ventilator in the roof.

Construction.

If it is the intention to use the building for housing only cows or light horses, 4 in. by 2 in. studs spaced 18 in. apart will be adequate, but if required for heavy draught horses or stallions 5 in. by 2 in. studs placed 14 in. apart are recommended.

Foundations.

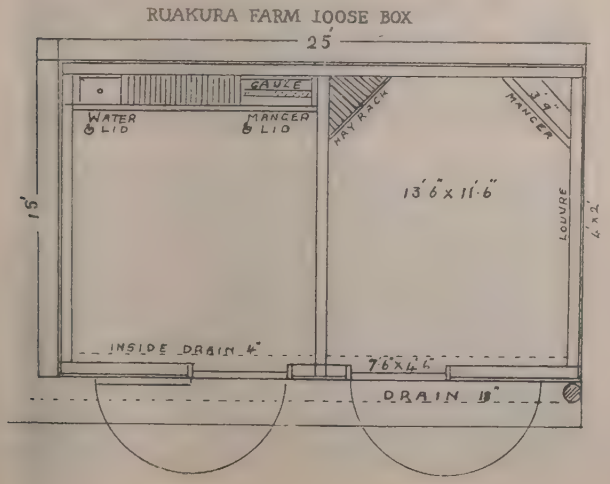
Concrete foundations for the walls should be provided. These should be sunk at least on an average of 8 in. into the ground and finished off 18 in. above floor-level. Reinforcing, such as barbed wire, should be used. To fasten the plates down to the concrete use 12 in. by $\frac{1}{2}$ in. galvanized bolts spaced 2 ft. 6 in. apart. These bolts should be slightly bent before bedding in the concrete and the threaded end allowed to project $2\frac{1}{2}$ in. above the boxing. The floor should be solidly laid and at least 5 in. thick.

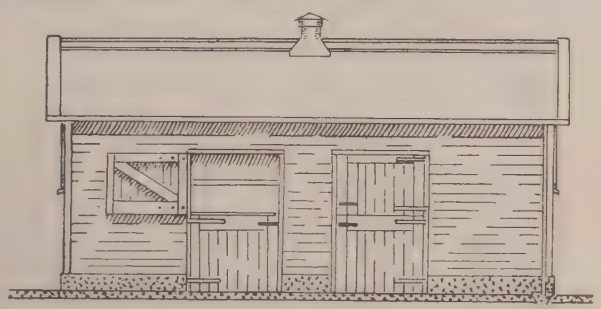
Materials Required.

To provide for a two compartment building as shown on the plan the following materials will be required:—

Cement and Shingle for Floors, Wall Foundations, and Approach.—Two tons of cement; 8 cubic yards broken stone or river shingle.

Timber.—The class of timber to be used will depend on the choice of the builder.





O.B. grade can be used, but for a lasting job it always pays to use the best quality.

Rafters: 4 in. by 2 in., 18/10 ft.

Jack Rafters: 4 in. by 2 in. 66/9 ft.

Plates: 4 in. by 2 in., 8/13 ft. 4/15 ft.

Studs, &c.: 4 in. by 2 in., 200 super feet.

Purlins: 3 in. by 2 in., 250 super feet; 9 in. by 1½ in., 4/11 ft. totara; 6 in. by 1 in. T.G.V., 1,500 super feet.

Weatherboarding: 6 in. by 1 in. B.B., 1,500 super feet.

Stops (boxed or solid): 6 in. by 1 in., 8/10 ft.; 4 in. by 2 in., 4/10 ft.

Scribing pieces (totara): 2 in. by ¾ in., 200 lineal feet.

Braces: 3 in. by 1 in., 100 lineal feet.

Boxing: 12 in. by 1 in., 200 super feet.

The 4 in. by 2 in. could be used for screeding concrete floors.

Fittings.

Two frame ledge doors 7 ft. 6 in. by 4 ft. 6 in. by 2 in.

Two door-frames to suit, 6 in. by 2 in.

Two louvres (either wood or glass).

Two mangers, 2 ft. 6 in. by 16 in. by 12 in. half-round, with 6 in. strip of brass gauze on bottom, heavy gauge, about $\frac{1}{16}$ in. mesh, placed 3 ft. high with 4 in. by 2 in. rounded hardwood.

Two hay-racks on same level as mangers constructed of ½ in. round iron 3 in. apart.

Hardware.

Four pairs 18 in. galvanized T hinges or Canadian gate-hinges with screws or bolts to suit.

Four 12 in. galvanized tower bolts and screws.

Two lengths galvanized chain 4 ft. long.

Twenty-eight sheets 10 ft. C.G. iron.

Five lengths 6 ft. by 16 gauge L.E. ridging.

Seven 8 ft. lengths 6 in. spouting with brackets and clouts to suit.

Four 8 in. lengths 2½ in. downpiping.

One round roof ventilator 12 in. diameter by 18 in. high.

One roll wire netting 2 in. by 19 by 3.

Two rolls building-paper with nails to suit.

Two rings with eyebolts attached; rings 2 in. diameter by ½ in.; eyebolts ⅝ in. by 6 in. long, threaded.

Two spring clips.

Thirty 12 in. by ½ in. bent galvanized bolts and washers.

—Compiled by T. E. Rodda, Manager, Ruakura Farm, from plans supplied by W. G. Smith, carpenter, Ruakura Farm.

Broadcasts from 4YA.

BROADCASTS by officers of the Department of Agriculture will be given from Station 4YA, Dunedin, between 7.40 p.m. to 8 p.m. as follows:—

May 1st: "Bees in the Orchard and on the Farm," by D. S. Robinson.

June 5th: "Swine Husbandry—The Care of the Weaner Pig," by H. R. Denize.

July 3rd: Selected talk by J. O. Wallace.

August 7th: "Seasonal Work in the Orchard," by E. F. Waters.

GOOD FARMS ARE BUILT WITH SAVINGS

WALLACE Haymaking Equipment

D. McL. WALLACE, LTD., NEWMARKET, AUCKLAND, Hamilton, Te Aroha, Matamata, Thames, Whangarei, Whakatane, Palmerston North, Stratford.

D. McL. WALLACE LTD., Dept. 'O' NEWMARKET, AUCKLAND.

Dear Sirs,—Please forward me details of the Oliver Rake and the complete range of Wallace Harvesting Machinery.

NAME .....

ADDRESS .....

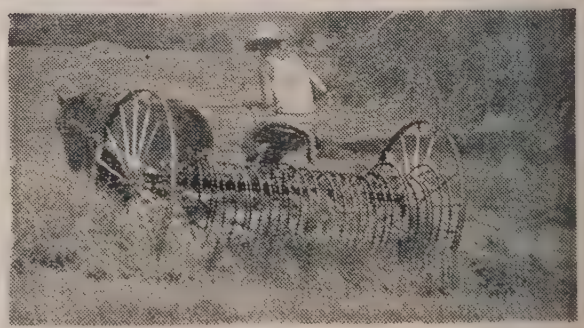
HAYMAKING... needs speed

3

And speed means savings. Let Wallace Haymaking Implements save you time and money and IMPROVE YOUR FARM OUT OF YOUR SAVINGS.

The Oliver Hayrake is designed specially for speed, strength and long service. Its bridge-trussed frame prevents sagging or twisting and guarantees long life and perfect running. All levers and pedals are most conveniently placed for speedy operation and the dump mechanism works at the lightest touch on the dump pedal. The Oliver handles light or heavy crops under any conditions and with both speed and efficiency. The coupon will bring fully illustrated literature.

OLIVER RAKES SAVE TIME & MONEY



Horticultural Instruction.

Contributed by Officers of the Horticulture Division.

Orchard Notes.

Storage of Late Apples.

ALTHOUGH the fruit season is now well advanced there will still be considerable quantities of late apples to harvest, some of which will be held in ordinary storage for marketing during the next two or three months, while an amount will be placed in cool storage for marketing during the period from August to December.

Much care is needed in handling any fruit for storage in order that waste may be reduced to a minimum. All damaged fruit should be discarded, as rot, which may affect sound fruit, invariably occurs. It is a good plan to grade and size apples even for ordinary storage and to stack them in such a way that the very large and more rapidly maturing fruit may be disposed of earlier.

If cool storage is carried out near the point of production it is more preferable to place the fruit in cool store unwrapped and to repack and wrap when the fruit is removed from storage for sale. With unwrapped fruit, however, protection against case markings should be provided by using paper case-liners. When fruit is stored at a distance it is necessary to wrap to assist in its safe carriage, and, as the fruit is then more or less out of the grower's control and repacking is difficult to arrange and is very expensive, it becomes even more necessary to ensure that nothing but perfectly sound fruit of good storage quality is packed and forwarded for storage.

Mid-season fruit stored in sheds should be examined often and marketed before wilt or rot set in and, above all, while the condition of such fruit is still good. Much harm may be done to a market through the sale of mid-season or even later fruit which has been held in ordinary storage unduly long and which has been allowed to become out of condition before selling. Late varieties, especially Sturmer Pippin, which are left to tree-ripen should be harvested before "apple-spot" develops, which may appear quite early in May.

With the final closing of the fruit-harvesting season, all reject fruit should be disposed of and the packing-shed and grader left perfectly clean. Picking-boxes should be gathered up, repaired, and stacked under cover.

Late Spraying.

Following the completion of the harvesting, it is an advantage to spray stone-fruit trees at "leaf-fall" with Bordeaux mixture 5–4–50. Certain varieties of peaches which are normally very subject to leaf curl often require two applications of Bordeaux to secure complete control. If it were always possible to apply these after bud-movement in the spring satisfactory results would be secured.

Weather conditions at the time may cause delays and so prevent spraying until too late to obtain maximum results. An application at "leaf-fall" will satisfactorily take the place of a spray at "bud-movement" and, having been applied, makes the position more secure in the event of weather conditions in the spring being unfavourable.

Following such autumn spraying the outfit should be thoroughly cleaned out and overhauled. Pipe-lines of stationary plants should be well flushed out and then filled with clean water.

General Work.

Although pruning will be the main work during the dormant period, certain important maintenance jobs should be given attention early. On flat lands with insufficient natural drainage, drainage becomes a matter of vital importance if maximum tree development and production is to be secured, as most fruit-trees suffer severely if the water-level is allowed to remain too high.

Existing drains may require attention by cleaning the open drains and outlets to the covered drains, and further drainage may have been found necessary where trees have stagnated in growth following a period of above-normal rainfall. It is an advantage to have such work completed before the winter rains set in.

Shelter-belts should be brought down to a reasonable level at regular intervals. This is especially important where poplar wind-breaks are used, as they soon become excessively tall and, unless reduced to a height of 20 ft. to 30 ft., cause excessive shade and keep a wide strip of land excessively dry, resulting in a much greater loss of fruit than is likely to be experienced through the reduced height of the shelter. It is a good plan to cut back a third of the poplar belt each year and so spread the work rather than attempt the whole job every three or four years.

Ploughing and Manuring.

Deep ploughing of the orchard at least once a year is advisable, and is best carried out in the late autumn. The ploughing close to the trees should not be so deep as to injure main roots. The effect of autumn ploughing is to improve the physical condition of the soil through the action of rain and frost, making it more friable. Thus, good tilth is procurable early in the spring, and trees respond to the improved soil conditions.

Where phosphoric and potassic manures are to be applied, it is advisable to sow immediately before the deepest ploughing. Nitrogenous chemical fertilizers should not be applied until the spring, when growth has begun.

Replacements and New Plantings.

Gaps in the orchard should be filled each year. Stone-fruit trees showing signs of silver blight should be replaced. New trees should be ordered early and taken delivery of and heeled in so that planting can be done whenever soil conditions will permit. Planting should not be attempted when the soil is wet.

For new plantings, the area intended to be set out in trees should be thoroughly prepared and brought into good tilth and particular attention given to drainage. Nothing is more disappointing than to grow trees for several years and then to find that, through inadequate drainage, trees have received a set-back after an unusually wet period.

The selection of varieties for new plantings or extensions to existing orchards must be done largely with a view to having a reasonable succession of varieties in order to spread the labour and make possible the economic handling of the crop.

—*N. J. Adamson, District Supervisor, Nelson.*

Viticulture.

Phylloxera-resistant Stocks.

(Continued from March issue.)

THE stock *Riparia* x *Rupestris* 3309 (Couderc) has been extensively used in the reconstitution of vineyards in phylloxera-affected areas throughout the world. It develops better than the 3306 and 101–14 in poor, stony, and sandy soils. It tolerates up to 35 per cent. of lime, and is reputed to give a higher percentage (60 per cent. to 70 per cent.) of unions in grafting than the two mentioned.

Unfortunately, in New Zealand it is adversely affected by anthracnose (blackspot), which attacks the callus formed at the union of scion and stock and kills it either partly or entirely, resulting in a partial union or no union at all. This has been noticed where the most common methods of grafting—the "cleft" and "whip and tongue"—were employed. It is possible that this stock could be used successfully in aerial grafting, such as "yema" and "green grafting." Under glass, where vines are not attacked by that fungus, it is not liable to suffer from anthracnose.

The 3309 promotes abundant fructification and early ripening, and its affinity for most *Vineferas* is good." The leaf is about the same size as that of the 3306, but it is broader than long, darker in colour, and has a more open petiolar sinus. In contrast to the 3306, the young shoots and leaves are smooth.

Berlandieri x Riparia Hybrids.

Quoting from an article in *L'Italia Agricola* by the well-known authority on viticulture, Vittorio Racah :—

> "This group constitutes the aristocracy of the resistant vine stocks, as the table grapes of the vines grafted on them attain a perfection not separated from a regular and abundant production which increases with age; the only small defect which some viticulturists have noticed is that during the first year there is a certain slowness in development."

I would add that this slight defect, from a nurseryman's point of view, is amply made up in the following years, when vigorous growth is the rule.

In combining the Berlandieri with the *Riparia* a combination of the qualities of these two stocks has been obtained. These hybrids are highly resistant to chlorosis and phylloxera. The *Riparia* contributes the grafting qualities, and the Berlandieri its great affinity for *Vinefera* sorts. The appearance and quality of the fruit of vines grafted on these stocks is improved, and ripening advanced. The size of the berries and bunches of the varieties grafted on them is increased, resulting in an increased crop.

The Berlandieri x *Riparia* are particularly suitable for producing superior table grapes and high-quality wines. They are represented in the Government vineyard at present by eight different selected stocks—the production of several hybridizers—which are generally recognized as being the most suitable for certain soil conditions and having the necessary affinity for fruiting varieties.

(To be continued.)

In the Viticulture Notes in the March issue part of the last paragraph in the second column should read: "... and with the Berlandieri x *Riparia* 420.A—on a little better soil—has proved to be a very suitable stock for grafting on the Albany Surprise (syn. Pierce) on."

—*J. C. Woodfin, Vine and Wine Instructor, Te Kauwhata.*

Citrus Notes.

Handling the Citrus Crop.

MANY citrus groves have been neglected for a period and will require considerable renovation. It must be clearly understood that there is little scope for inferior fruit. Too often in the past the grower has forwarded his fruit to the depot diseased and distorted and often badly handled. He has, moreover, expected the depot to handle all such fruit and return him a payable figure. Naturally, the return was unpayable. The grower lost confidence, the orchard deteriorated, and the whole marketing problem became more and more complex.

A brief summary of the essentials towards delivery of good, sound fruit is opportune at the present time.

(1) Put the trees in good heart. Pruning is essential, and any Orchard Instructor will be only too pleased to advise in this direction.

(2) Give more attention to green-manuring crops.

(3) Pick every three or four weeks, and pick to size.

(4) Pick and handle carefully from tree into the cases.

(5) Keep orchard cases clean and in good condition, free from nails, &c.

(6) Discard all valueless fruit in the orchard. By-products are not an outlet for diseased or ill-formed fruit. In general, only the best fruit is used overseas for pure fruit-juices.

(7) Do not overfill the cases.

(8) Handle the cases with care from orchard to depot.

—L. Paynter, District Supervisor, Auckland.

Tobacco Notes.

Cleaning the Plantations.

AS most of the tobacco-growers have completed their harvest for the season, many are taking advantage of the dry season to clean up their plantations of the old plants that have borne crop.

The correct method, and that adopted by most of the progressive growers in the Nelson District, is to pull up the plant by the roots and remove to headlands, or to pack in windrows and, when dry enough, burn. This goes a long way towards destroying the spores of mosaic wilt and caterpillar eggs, which otherwise will cause damage next year.

The practice of disking the old plants twice and then ploughing in the whole mass, roots and all, is becoming less and less popular.

Because of the dry season there has been no rain since Christmas. The tobacco crops in the Nelson District are lighter than previous seasons, but the quality is good with most varieties. The variety Warne has given trouble in some instances; as it is a heavy-bodied leaf it has felt the dry conditions more than Harrison's Special, which is the favourite export variety.

Grading tobacco-leaf will begin during this month, and growers are advised to adopt the hollow table for each individual grader. This type of table was described in the May issue of the *Journal*, 1938, and it has been adopted by many, who find that it makes for greater efficiency and increases the output by 20 per cent.

—Charles Lowe, Tobacco Instructor, Motueka.

Cool Storage Notes.

Temperatures for Most Varieties.

THE dry seasonal conditions during the past few months have reduced production figures of fruit throughout the Dominion. Light rainfall in December, January, and early February is necessary to obtain the normal growth and colour of the fruit.

However, the dry, warm conditions have largely assisted in the production of fruit of good, firm texture and excellent flavour and keeping-qualities, although much of it has not come up to the size required for export.

A good out-turn on arrival overseas may reasonably be expected for export fruit this season, as there should be practically no wastage during transportation, and this should continue up till the time it is distributed and reaches the consumer. Local market supplies also should possess excellent qualities right through the year.

Cool-storage temperatures for most varieties of apples this season should be held at 33° F. to 35° F. Delicious may be held at lower temperatures and stored with pears. Granny Smith, also, may be successfully held at lower temperatures after a period of pre-storage treatment. Jonathans, when placed in cool storage, should have been reduced in temperature very gradually after 40° F. was reached, taking about two weeks to reduce to the lower temperature 33° F. to 35° F., which should prove the best temperature to hold when taking into consideration the effect of the dry season on the texture and quality of the Jonathan variety.

A dry season usually has a tendency to produce fruit that is subject to wilt after a long period of cool storage. It will therefore be necessary to pay particular attention to humidity where the cooling is from a wet battery or when using forced air circulation.

—A. Powell, Cool Storage Officer, Wellington.

Boysenberries in Hawke's Bay.

A number of persons in the Hawke's Bay district have planted boysenberries. An orchardist at Taradale planted out about two dozen at the end of January, 1938. In January, 1939, most of the plants were fruiting, and a number of them were still in flower. Several pottles of fruit realized good prices. These plants were fruiting on the new season's growth. Although the plants have made good strong growth, there is no sign of suckering.

The loganberry is grown fairly extensively in Hawke's Bay, but after the plants have been fruiting four or five years the fruit becomes small and is inclined to dry out before they are matured; consequently the beds have to be renewed after that period.

So far in Hawke's Bay the boysenberry has proved that it does not sucker any more than the loganberry, and that it may supersede the loganberry.

—J. E. Sharp, Orchard Instructor, Hastings.

Vegetables, Small Fruits, and Flowers.

Contributed by the Horticulture Division.

Another Planting Season Begins.

ANOTHER "planting season" begins in May, and well-thought-out plans may then be carried to a successful conclusion if good plants are set out in well-prepared ground or that which is naturally suitable. Like any other business man, a nurseryman is careful to avoid loss through carrying surplus stock, and as the quantities propagated have usually to take the chances of weather and other vicissitudes during a period of at least twelve months' growth before the plants are ready for sale, the risks are greater than with factory-made articles.

The discriminating buyer who wishes to avoid substitutes is wise, therefore, to inspect the nursery crops now if he has not already done so, make his selection, and place his order for delivery as soon as the plants are ready. As the planting season passes, the selection in both kind and quality usually narrows down, and in some instances very rapidly. At this stage the plants can be just as well accommodated on the farm as in the nursery, and they are then on hand for planting at any moment when circumstances enable it to be done best and most conveniently.

It is to be remembered that they are living things and need attention, but if they are carefully "heeled in" in a piece of conveniently situated friable land very little further attention will be required until it comes to planting. It is well known that the roots of plants must not be exposed to sunlight and wind or be allowed to dry out, but, especially where large quantities are being handled, supervision is necessary to see these elementary but important rules are observed in all circumstances.

Where the preparation of the land is completed satisfactorily, early planting should be done whenever possible as, although little top-growth will be made, root activity is very considerable during the winter months. An exception can possibly be made in the case of plants which may be injured by low temperatures. These are often reserved for planting in the spring, when serious low temperatures are unlikely to occur.

Shelter Planting.

From early times these latitudes have been known as the "roaring forties." Escaping the sudden hurricanes of the tropics, they frequently experience long spells of boisterous weather which are injurious to tender crops, heavily laden trees, ripening grain, and, especially when temperatures are low, stock and pastures. For this reason hedge and shelter planting is of special importance in this country, although it is commonly overlooked, probably because it makes no direct return.

It is of the highest importance, where fruitgrowing and intensive cropping are done, and also about the homestead. Some of the mistakes of the past have been a lack of proportion—the shelter has been too high and large, too close to buildings, too inflammable, excluding light and air, or requiring a great amount of labour trimming and topping it to keep it in condition. These mistakes have been made in most districts, and should be a warning against a repetition. It must always be remembered the most valuable information on this subject is contained in the success and failures of previous planters in one's own locality on similar land.

If the ultimate height of the plant and the quality of the land are considered there is a sufficient variety of plants available to meet all requirements without making any of the serious mistakes mentioned. The main necessary features are usually a dense belt, principally evergreen, to break the force of the prevailing wind, and hedges to leeward, fairly closely planted but limited as much as possible to avoid the labour of t annual trimming which must be done.

On broken country "spot" planti is done after clearing any inflammab material present. On flat country preparation is too good for the qui establishment of so important an ass A rule to be strictly observed afterwar for at least a few years until the plar are well established is to see that t competition of weeds and grass does r seriously rob the plants of the light a air required for rapid growth.

Small Fruits and Nuts.

Small fruits for planting at this seas are black, red, and white currants, a gooseberries and raspberries, all of whi demand a cool climate for the b results. Loganberries, Cape gooseberri tree tomatoes, and passion-fruit thri in the warmer districts, but they are best planted in the spring.

Sundry fruits include almonds a walnuts, which thrive best in the dr eastern districts, and chestnuts and ha nuts, which are less particular in th respect. Persimmons, figs, and mulbe are deciduous trees of moderate s which thrive well in localities that fair to warm. Feijoa and loquat evergreens requiring a similar clima The Chinese gooseberry is a vigoro deciduous vine requiring a fairly wa position and good soil. It is uncomm among our fruit plants in that ea is of one sex only, the fruit being bo on the female plant alone.

All these plants are worthy of consid ation for planting in suitable distri both for home supplies or market purpos The small fruits mentioned for plant now require a good, rich, moist lo well prepared and quite free from twi and bad weeds; red currants a gooseberries will also thrive on a sor what lighter soil. All should be plan in solid brakes where injurious r disturbance can be avoided.

The sundry fruit plants mentioned are generally best planted about the homestead or paddocks, where they often serve a double purpose of use or ornament as well as carrying a crop of fruit or nuts. Walnut and chestnut make useful shade, shelter, or avenue trees, as well as producing good timber, while the Chinese gooseberry is an excellent vine for affording summer shade on pergola, loggia, or trellis. The remainder have distinctly ornamental features which enable them to be planted in any position where the land is suitable, in the form of specimen trees or groves.

Those who contemplate much planting under this heading should consult the Government Orchard Instructor for the district. He has opportunities for knowing the locality and its suitability for any of these crops, and will be pleased to advise in the case of difficulty or doubt. The local office of the Department of Agriculture will tell you where to find him.

Flowers for Every Season.

THE influence of the home is a topic which receives much attention, but it is rarely realized that the influence for good will be increased if it is made pleasant, interesting, and attractive by suitable planting in the vicinity. This may be done by affording shelter and shade and flowers which blossom in succession. This often makes a great deal of work, but it will not do so if the plants selected are suited to their environment. They will then flourish with little attention and, if rightly placed, will not outgrow their position.

There are attractive trees and shrubs suited to practically all the soils and situations in this country whether they be shady or sunny, wet or dry, sheltered or exposed, or whether the soil be light or heavy. If a garden has been planted not too wisely one is not committed indefinitely to endure the conditions; a few removals (possibly transplanting some of the shrubs) and a few additions will often enable the gardener to rectify most of the mistakes which have been made. Even when the planting has been skilfully done there are "fillers" which have to be removed and replaced with subjects which could be planted only when good shelter and shade had become established, as, for instance, the tree ferns, nikau palms, hydrangeas, rhododendrons, &c.

Improving the Garden.

After studying the subject during the past growing season one should now be in a position to advance the improvement of the garden another stage by making some of these alterations and additions during the planting season. When setting new plants make sure they are free from diseases, pests, and bad weeds. Shorten straggling roots and cut clean away those which are bruised and broken. Thin out the branches of shrubs if they are inclined to crowd and cross, using sharp shears and cutting close so that the operation does not have to be repeated. Examine trees carefully, and remove a double leader or branch which is likely to upset the balance.

Then plant out when the ground is sufficiently dry to be thoroughly consolidated about the roots without clodding, setting the plant at the same depth as it grew previously. To secure vigorous growth the branches of shrubs of most kinds should then be shortened back to just beyond a bud pointing outwards, and the leader of a tree to a bud pointing in the direction of the prevailing wind.

Importance of "Thoroughbred" Seed.

IN the successful production of seedling crops it is self-evident that there is nothing more important in the attainment of that object than the fact that the seeds must be good—that is, they should be free from disease, of strong vitality, true to name, and of a superior strain.

Important as it is, the quality of seeds is often taken for granted, and as long as the price is moderate they are bought with very little further consideration and stored in a cabinet or placed on shelves in a damp potting-shed or similar place until used. Such an important factor in cropping demands careful consideration, and the present time is most suitable for the purchase of the seed requirements of the coming season.

Disappointing experiences, which unfortunately have been of common occurrence, have impressed the fact that some of the most serious diseases affecting plants are borne on or in the seeds. This fact should be specially remembered when buying overseas and dealing with an unknown supplier whose special attraction is cheap seeds. By cutting down the work of selection and roguing and disregarding the presence of disease, cheap seeds may be grown but the crop from them will not be outstanding for size or quality. Generally it will be commercially useless, and occasionally it will be found that a disease has been introduced which will be costly to eradicate.

In no purchase is it so necessary that one should deal with a supplier of good repute. With other goods the quality and workmanship can often be ascertained on examination before purchase, but seeds must be bought to a great extent on the reputation of the supplier. It is true that the purity and vitality of seeds can be ascertained, but whether they are true to name, of good strain, and free from disease has in a large measure to be taken on trust.

There are men and localities with a special reputation for the production of certain seeds, and it is best as far as possible to deal with them and to pay a price which is necessarily comparatively high. With the more important crops it is often advisable to grow a few plants to test the strain of the seed before sowing the bulk and planting out large areas.

The progressive grower is naturally attracted by the list of "novelties" found in the seed catalogues, but if he is also experienced he will make a selection of those likely to suit his land, climate, and trade and to give them a trial before discarding standard varieties in their favour.

Certified Seed Potatoes.

What has been said applies also to potato-seed. The grower now is able to obtain seed of this kind which is reliably "certified" to be true to name, free from disease, and a good yielding strain. The grower is very unwise to plant any other, and as the supply of good stocks is not inexhaustable an early purchase of the season's requirements should be made and given proper storage so that it may be in the best order when planted and be on hand at the moment when all conditions are favourable for sowing.

Suitable storage for seed potatoes is a place which is cool and normally humid and well ventilated to check heating and sprouting. It is an advantage to increase the temperature and light a few weeks before planting to encourage the production of short, sturdy sprouts which will give the crop a good start, and it is of special importance with he early varieties. The storage of seeds of other kinds requires equal care, especially in humid localities and more especially where the temperatures are high. A damp shed anywhere is unsuitable for the storage of these seeds, which, to maintain a high percentage of germination for a maximum period, must be given dry storage conditions.

On arrival, parcels of seeds should be checked over, labelled, and dated, and given perfectly dry conditions, which is all the more important in humid localities.

Work for the Month in the Apiary.

Control of the Wax-moth Pest.

IN districts where wax-moths are troublesome, particularly the large moth (*Galleria mellonella*), a periodical examination should be made of all extracting combs. These moths do an enormous amount of damage, particularly in the off-season, and especially in districts where mild weather conditions prevail. The moths not only attack the dry combs, but also combs of honey stored for spring feed.

Where the moth is prevalent in large numbers a special comb-room is essential. It should be constructed so as to be nearly airtight, and filled with racks on which to suspend the combs to enable fumigants to penetrate the cells. If there are only a few combs to be dealt with they may be stacked in supers, spaced eight to the super, care being exercised to see that the junctions of the boxes are made smoke-tight by pasting a strip of paper around them. The top box of the pile should contain no frames. Into this place an iron saucepan containing wood embers, and on these throw a small quantity of sulphur. Close the supers securely, and keep closed for a couple of days. In three weeks to a month a second fumigation should be given.

Bisulphide of carbon may be used to accomplish a similar result. In using this chemical the combs can be stacked in a tight box or in supers. If the latter are used all cracks must be closed with paper pasted on the outsides to prevent the fumes from escaping. Place a quantity of the bisulphide in an open dish on top of the combs.

The liquid evaporates, and the fumes, being heavier than air, settle over the combs, thus effectively killing the moths. This operation may have to be repeated during the winter months. Great care must be exercised when using the bisulphide, as it is highly explosive and dangerous, and on no account must a fire or light be allowed near the liquid when it is being used.

Efficient Control.

For the efficient control of the wax-moth, calcium cyanide may be used, and it is more effective than the fumigants previously mentioned. The active agent of calcium cyanide is liberated in the form of hydrocyanic-acid gas, which is a most deadly poison to all life. It can be used with safety, however, because the liberation of the gas from the powder is slow, thus allowing the operator to retire after giving a charge.

Fumigation of combs may be done in supers after taking the precaution of making them gas-tight in the same way as when using sulphur or bisulphide. The calcium cyanide should be finely sprinkled on newspaper and the dosage placed at the bottom of the stack. In the event of a comb-room being used the supers containing the combs can be stacked criss-cross or placed on the racks usually provided. No other preparation is necessary. In operation the calcium-cyanide powder should be sprinkled on paper and placed here and there about the comb-room.

For super fumigation it is recommended to use a dose of 4 lb. to 1,000 cubic feet of space. Half the quantity will suffice for airtight comb-rooms. These dosages will kill the moths in all stages. As already indicated, the gas, being deadly to all life, must be handled with great care. The writer has used calcium cyanide in the open air for killing bees, and has watched its deadly results.

Caution, however, is necessary when the chemical is used in buildings. The operator should leave the building as soon as possible, and should lock the doors and windows. Twenty-four hours' treatment will suffice, after which the door of the room should be opened to allow the gas to escape, but the building should not be entered for from two to three hours.

There is no danger of poisoning honey in ordinary fumigation with calcium cyanide; consequently combs of honey stored for spring feed when attacked by the wax-moth can be fumigated in a similar manner to dry combs, and the combs of honey so treated can be fed without injury to the bees.

Plans for Next Season.

The off-season is the best time to make plans for the following season. The beekeeper should decide what increase he desires to make, and should prepare accordingly. Making up hives and frames is exasperating work if left until the bees are in urgent need of room, and it should be finished long before the actual time for increasing one's stock arrives.

The beekeeper should also face the question of providing himself with stocks of foundation, and should make arrangements for the treatment of his surplus wax by some neighbouring maker of foundation. He should also decide on which market to place his crop, and should lay his plans accordingly.

It is advisable, too, that he consider the theoretical side of his occupation and study, while the bees are in a dormant condition, the best methods of improving his stocks. Neither weather conditions nor locality nor any other factor will influence the honey-crop so much as strong colonies of bees, and the apiarist should endeavour while he has the time to ensure that these shall be in existence during the coming summer.

Winter Work.

During the dormant season mice are likely to make themselves troublesome in the apiary. They attack the stores, and otherwise destroy the combs. Many colonies are by this means reduced to the verge of starvation by the spring.

It is the work of only a few minutes to examine the hives, and, where gable roofs are adopted, the mice-nests will usually be found on top of the mats. To obviate this trouble the entrance should be contracted.

—*E. A. Earp, Senior Apiary Instructor, Wellington.*

Poultry-keeping Section.

Poultry Hygiene and Sanitation.

HYGIENE is a system of principles or rules designed for the promotion of health, and every poultry-keeper should know and practise these rules in connection with his birds if he is to keep them in the best condition and receive the maximum reward for his labours.

It is well to remember that good environment comes second only to good breeding when successful poultry-keeping is being considered. In fact, there are successful poultry-keepers who will argue that good, healthy environment is at least of equal importance to good breeding. It is true that one does at times see birds which are apparently healthy kept under conditions in defiance of the laws of good sanitation, but the poultry-keeper who does not observe the great law of cleanliness will never get the best return from his birds, and sooner or later will have to pay for any neglect in this respect. The larger the number of birds kept together, the sooner will trouble be experienced if the rules of sanitation are not strictly observed.

Poultry hygiene and sanitation may be considered under the following headings: Housing, the land, feeding, exercise, internal and external parasites, isolation of sick birds, and the disposal of dead birds.

Housing.

Briefly, it can be said that to house poultry successfully certain conditions are essential, and these are ample room, fresh air, sunlight, cleanliness, and freedom from dampness and draughts.

The beginner is at times inclined to try that dangerous practice of overcrowding. Especially is this noticeable where growing stock are concerned. Too often the inexperienced person is anxious to build up his flock before his experience warrants that course.

The result of this overcrowding is that instead of the constitution of the birds being built up their vitality is lowered. Many culls are often made, and just as the birds are coming into profit severe losses are experienced from colds, roup, &c.

Too many poorly reared pullets are to be seen on plants, many of which will never repay the cost of rearing them. Much of this trouble and disappointment would be overcome if the poultry-keeper fully appreciated the great value of ample fresh air when housing his growing stock.

Where adult birds are kept on the intensive system, it is advisable to allow them 4½ square feet floor space per bird. The perches should be from 15 in. to 18 in. apart, and from 8 in. to 9 in. perch room should be allowed per bird. Where birds have a good free range and use the house only at night, however, they do not require the same floor space per bird. Nevertheless, it is well to remember that during the winter and early spring birds spend just about as much time on the perches as they do off them, and if housing-conditions are not suitable the health of the birds must be affected.

In order to impress upon the beginner the great importance of fresh air in poultry-houses, the figures which were given by Colin, a French physiologist, and quoted by King (1910), in respect to air breathed by different animals per 1,000 lb. live-weight each twenty-four hours are again mentioned. They are as follows:—

	Cubic Feet.
Cow	2,804
Horse	3,401
Sheep	7,259
Hen	8,278

Quality more than quantity should be the aim of all poultry-keepers, and when the great value of fresh air in poultry-houses is appreciated the better it will be for the industry.

Sunlight.

Disease germs cannot stand long exposure to the direct rays of the sun, and for this reason sunlight has been described as Nature's great disinfectant.

If birds are compelled to live in dark houses where the sun's rays never enter they will not remain healthy, and liver troubles and other diseases may affect them. It is well, therefore, to see that plenty of sunlight is allowed to enter the house as well as fresh air.

Dampness.

One of the most unfavourable conditions in a poultry-house is dampness. If stock are compelled to roost or stand about in a damp house they will never give the best returns, for nothing seems to check egg-production more than dampness. Especially is this so during the autumn and winter months.

In order to guard against dampness it is advisable to see that the floor of the house is at least a few inches higher than the surrounding ground. Well-laid concrete floors are recommended. At times, of course, the cost of such floors is prohibitive, but where possible a concrete floor will be found to be the best.

It is important to see that no surface water is allowed to enter the house, and for this reason good drainage is necessary. It is a good idea to have a system of dry wells in places where the surface water cannot be carried away by drains. These are made by digging holes in the ground until the gravel is reached and then filling up the holes with large stones. If the ground is then graded the surface water should drain into these holes.

The Land.

The droppings from an adult fowl amount to close on 1 cwt. each year, which makes difficult the problem of maintaining the runs connected with a permanent poultry-house in a sweet and clean condition. The best method is to arrange for at least two runs for each house, so that one may be used one year and the other the following year, and to purify the soil thoroughly each year by ploughing or digging and growing exhaustive crops, the growth of which absorbs the manure.

If alternating runs are not possible, it may be advisable to keep less birds on the intensive system for a year while the

New Price List for Wallaceville Poultry Station.

SITTINGS OF EGGS.

Season commences about 1st July and terminates about 30th November. Orders may be booked ahead, and advance booking is advisable to ensure procuring requirements. This particularly applies when delivery is desired during the months of August and September.

Class.	Breed.	Description of Eggs.	Prices. Per Dozen. s. d.
A–1 ..	White Leghorn..	From flock matings	6 6
A–3 ..	Langshan ..	From flock matings (*limited to three dozen for any one order*)	6 6
B–1 ..	White Leghorn	From trap-nested hens (200 eggs and over) mated with cockerels from hens which have produced 200 eggs and over. (*Limited to three dozen for any one order*)	12 0
B–2 ..	White Leghorn..	Of pure New South Wales Government strain. (*Limited to one dozen for any one order*)	12 0
B–3 ..	White Leghorn..	Crossed strain: From trap-nested hens (200 eggs and over) mated with imported English cockerels. (*Limited to one dozen for any one order*)	12 0
B–4 ..	Langshan ..	Crossed strain: From selected hens mated with imported English cock. (*Limited to one dozen for any one order*)	12 0
B–5 ..	Australorp(Utility Black Orpington)	From recently imported stock from New South Wales Government. (*Limited to three dozen for any one order*)	12 0

NOTE.—Postage or railage free; will be posted unless otherwise instructed.

Class C.—White Leghorn, in incubator lots (flock matings only), 8 dozen or more, 5s. per dozen, railage free. If to be sent by post, 6d. per dozen extra.

Special boxes are used for packing eggs. For small lots boxes holding *one dozen each* are used, and are transmitted through the post-offices as FRAGILE PARCELS, and should thus carry safely to any part of New Zealand.

For incubator lots of eggs larger boxes are used.

DAY-OLD CHICKS (UNSEXED.)

Obtainable from August to October—Prices free-on-rail Upper Hutt.

Class.	Breed.	Under 50.	50 to 99.	100 and over.
D–1 ..	White Leghorn	1s. each (25 for £1 5s.)	11½d. each (50 for £2 8s.)	11d. each (100 for £4 11s.)
D–3 ..	Langshan ..	1s. each (25 for £1 5s.)	Limited to twenty-five chicks for any one order.	
D–4 ..	Australorp (Utility Black Orpington) from imported stock	1s. each (25 for £1 5s.)	Limited to twenty-five chicks for any one order.	

The sexing of day-old chicks is not undertaken at Wallaceville.

BREEDING BIRDS.

(All Prices are free-on-rail Upper Hutt.)

Class.	Description of Birds.	Prices (according to Selection).
	Hens, terminating Second Laying-season.	
E–1 ..	White Leghorn	5/– and 7/6
E–3 ..	Langshan	5/– and 7/6
	Hens, terminating First Laying-season.	
F–1 ..	White Leghorn	10/–, 15/–, and 20/–
F–3 ..	Langshan	10/–, 15/–, and 20/–
	Pullets (not available until March).	
G–1 ..	White Leghorn	20/– and 30/–
G–3 ..	Langshan	20/– and 30/–
G–4 ..	Australorp (Utility Black Orpington), (from imported stock)	20/– and 30/–
	Pullets, Ten Weeks old (available after 1st November each Year).	
	ORDER EARLY.	
H–1	White Leghorn	6/–
H–3	Langshan	6/–
H–4	Australorp (Utility Black Orpington), (from imported stock)	6/–
	Laying Pullets (not available until March).	
	(A limited number only, for laying but not necessarily suitable for breeding purposes, will be available.)	
I–1 ..	White Leghorn	10/–
I–3 ..	Langshan	10/–
I–4 ..	Australorp (Utility Black Orpington), (from imported stock)	10/–
	Cockerels (not available until March).	
J–1 ..	White Leghorn	20/–, 30/–, and 40/–
J–2A	White Leghorn, of part English strain	20/–, 30/–, and 40/–
J–3A	White Leghorn, of pure English strain	20/–, 30/–, and 40/–
J–4 ..	Langshan	20/–, 30/–, and 40/–
J–5 ..	Australorp (Utility Black Orpington), (from imported stock)	20/–, 30/–, and 40/–

Full particulars may be obtained from the Poultry Overseer, Veterinary Laboratory, Private Bag to Wallaceville, Wellington.

run is being sweetened. Failing this, it is well to give all runs a good dressing with lime at about 1 lb. per square yard. A good time to do this liming is during May or June.

Tainted ground is undoubtedly responsible for many diseases from which poultry suffer, and precautions should be taken to keep their runs as clean and sweet as possible.

Exercise.

Where poultry have a good, free range the question of exercise does not call for much attention, but where they are kept in small yards or on the intensive system it is necessary to ensure that they are encouraged to take exercise in order to keep them in good condition and to maintain their resistance to disease.

Exercise is best encouraged by providing plenty of good, dry litter, and scattering all grain evenly among it. Care should be taken to see that the litter does not become too heavy or damp, for if this happens the birds will not take the necessary exercise.

Feeding.

With many poultry-keepers good practical feeding is really more an art than a science. Although they may not know how to calculate a balanced ration they do feed correctly, and this is done by keen observation and close attention to detail.

Briefly, it may be said that the three main points in feeding are quality, quantity, and regularity. Never feed any material that is not wholesome, such as musty grain, tainted meat, or decayed vegetables or fruit. Good-quality food is found to be the cheapest in the long-run.

While it is necessary to feed plenty of good, wholesome food, care should be taken to see that none is wasted and left lying about to go sour. Plenty of trough feeding space—about 3 in. per bird—should be allowed, and care should be taken to ensure that all feeding-equipment such as mixing-troughs, &c., are kept in a clean and sanitary condition.

Drinking-water.

The great importance of a good, clean, and constant supply of drinking-water is sometimes not fully realized. It is from the water-supply that infectious disease is often transmitted through a flock, and one of the surest ways of checking egg-production is by leaving the birds short of water. When birds are laying they require twice the quantity of water that is needed when they are not laying.

Water-dishes should be so placed that the water is not likely to be contaminated from litter or manure. All drinking dishes and fountains should be cleaned regularly each day.

(To be continued.)

—C. J. C. Cussen, Chief Poultry Instructor, Wellington.

Make Every Winter Month a BONUS MONTH in 1939

Every winter egg you get is worth nearly twice as much as every summer egg. No effort should be spared, therefore, to ensure that you get your birds away to a good ***start*** towards full capacity laying between April and September. Put them on Karswood now, the PROVED poultry tonic, that turns pullets and hens into veritable winter-egg-producing machines.

The reason why Karswood puts extra money in the pocket of every poultry-owner is explained in a few words. During the winter season *ground insects*, the hen's natural tonic stimulant, are notoriously scarce. Karswood remedies this shortage—it supplies these valuable insects, plus blood-enrichers, which help the tiny egg-seeds inside the hen to ripen at a steadier, faster rate. In other words, Karswood assists the bird to deliver the goods in Winter just as Nature enables her to do in the Spring.

Cash in on profits in a BIG WAY this winter. BANK on Karswood for a bumper egg-yield! Read this:—

1,300 EGGS PER WEEK FROM 250 PULLETS.

I know you like to hear from users as to what results they have had before and after using Karswood Poultry Spice. However, I am pleased to say there has been no "before" with me. I have been using your Karswood Poultry Spice ever since I started keeping poultry about twelve years ago. At present I run a flock of about 400 birds (ducks and fowls), and they all have your Karswood Spice and are in perfect health. My flock of 250 pullets has yielded a steady average of 1,300 eggs per week for some time past. I put it down to Karswood Poultry Spice, and keep using it. My losses from illness during the past six months are NIL, and, considering I live in a cold district, I think my results are excellent. My advice to any poultry-keeper is: "Karswood your cares away."—A.C.

(Original letter on file for inspection.)

¼D. A DAY FOR EVERY FIVE HENS IS ALL IT COSTS YOU

1/- packet of Karswood supplies 20 hens for 16 days; 2/- packet supplies 40 hens for 16 days; 7 lb. tin (12/6) supplies 280 hens for 16 days. Try a shilling packet.

KARSWOOD POULTRY SPICE

Increases egg-production without forcing, because it contains ground insects, but no cayenne pepper, &c.

N.Z. Federation of Young Farmers' Clubs.

Edited by S. Freeman, Dominion Organizing Secretary.

Manawatu Young Farmers Co-operate in Physical Fitness Week.

G. S. ROBINSON, District Secretary, Manawatu.

FOLLOWING an appeal from the Minister of Internal Affairs, Hon. W. E. Parry, to assist local committees to stage the Physical Fitness Week in their districts, the Manawatu Young Farmers' Club District Committee made arrangements to organize a sports meeting, which was held on Saturday, 25th February.

In order to make as spectacular and as interesting a day as possible it was decided to ask for the assistance of the Interhouse Girls' Sports Association, with the object of making a combined effort and furthering the aim of bringing the town and country together. This co-operation was given very freely, and the following attractive programme was drawn out by the combined sub-committees :—

The Programme.

12 noon to 1.30 p.m. : Heats of Y.F.C. championship events—100 yards dash, 440 yards interclub relay, interclub tug-o-war, throwing the cricket ball, sheaf tossing. 1.30 p.m. : Marching display by interhouse girls. 2 p.m. : Mixed three-legged races. 2.10 p.m. : Finals of Y.F.C. tug-o-war and throwing the cricket ball championships. 2.20 p.m. : Final Y.F.C. 100 yards championship. 2.30 p.m. : Grand parade, oath of allegiance, and massed singing of "Land of Hope and Glory." The oath of allegiance to health and fitness was taken on behalf of the massed assembly by Miss New Zealand and a Y.F.C. stalwart. 3 p.m. : Massed drill display by interhouse girls. 3.15 p.m. : Final Y.F.C. 440 yards interclub relay championship. 3.25 p.m. : Special Exhibition by P.D.C. girls. 3.35 p.m. : Mixed relay sack races and final of sheaf tossing. 3.45 p.m. : Y.F.C. "all-in football" played with medicine ball. 4 p.m. : Interhouse girls' ball game.

There was an attendance of nearly one hundred and fifty young farmers at the A. and P. Showgrounds, the majority of whom took part in the sports, and there was excellent competition in all events.

The winners of the Y.F.C. tug-of-war championship held at the recent sports at Palmerston North as part of the Physical Fitness Week.

[Acme Studios photo.

Results of Events.

The results of the athletic events were as follows :—

100 *yards championship.*—First heat : C. Golder, 1 ; R. Lee, 2 ; R. Rowland, 3. Time, 12⅕ sec. Second heat : J. Howell, 1 ; MacDonald, 2 ; I. Rowland, 3. Third heat : D. Kearney, 1 ; J. Waugh, 2 ; E. Osborne, 3. Time, 10 sec. Fourth heat : Anderson, 1 ; Teasdale, 2 ; Lodge, 3 : Final : Golder (Woodville), 1 ; Lee (Oroua Downs), 2 ; Kearney (Apiti), 3. Time, 10⅕ sec.

Tug-o-war.—Kimbolton team, 1; Pohangina Valley team, 2.

Tossing the Sheaf.—E. W. Barnett (Halcombe), 1; P. Thevenard (Kimbolton), 2. Height, 43 ft.

Throwing the Cricket Ball.—I. Waugh, 1; I. Howell, 2; Galier, 3. Distance, 82 yards.

Interclub Relay.—Kimbolton (C. Waugh, W. Lodge, H. Beard, A. Clark), 1; Paraparaumu, 2; Woodville, 3. Time, 48⅘ sec.

Three-legged Race.—Gretton and Miss Dunstan, 1; J. Woodley and Miss Judd, 2; B. Dixon and Miss Loudon, 3.

At 1 p.m. the heats of the various events were stopped in order to allow the procession which had set out from the Palmerston North Square to form up in front of the main grandstand. Short speeches were made by the Mayor of Palmerston North, Mr. A. E. Mansford, and Mr. C. R. Bach, Government Physical Adviser, congratulating those responsible for the day's activities. Mr. Bach also conveyed to young farmers a special message from the Hon. W. E. Parry thanking them for their efforts in connection with Physical Fitness Week.

The young farmers were fortunate in having as their guests at the sports meeting the Director-General of Agriculture, Mr. A. H. Cockayne, the Assistant Director-General of Agriculture, Mr. E. J. Fawcett, the Editor of the *Journal of Agriculture*, Mr. H. I. Forde, and the New Zealand Organizing Secretary of the Young Farmers' Clubs, Mr. Sydney Freeman.

Young Farmers' Part.

The organization of the sports-day was in the hands of the following committee: Messrs. H. J. Lancaster, J. B. Chrystall, D. Rowland, R. Millar, F. E. Sherwood, and G. S. Robinson, secretary.

Young farmers in the Manawatu also took an active part in the general Physical Fitness Week programme. Messrs. Rowland, Sherwood, and Robinson acted on the Palmerston North general committee, which arranged the full week's programme, including swimming, athletics, grand procession of more than one thousand, talks on health subjects, gymnastic displays, and many other events.

Mr. Sherwood was appointed chairman of a sub-committee set up to arrange a dance as a grand finale to the week. There was an attendance at this function of approximately one thousand, and a profit of £60 was made. This serves to show that young farmers in the Manawatu are taking a really active part in the public life of the district and constitute a movement which is making its presence felt to the benefit of the farming community.

Inter-district Stock-judging Competitions.

C. R. TAYLOR, District Secretary, Whakatane.

THE inauguration of Y.F.C. inter-district stock-judging competitions at the recent Whakatane Agricultural and Pastoral Show marked another milestone in the progress of Bay of Plenty (Eastern and Western Districts) and Rotorua Young Farmers' Clubs, and it is most gratifying to be able to report that great enthusiasm was displayed by the three Y.F.C. districts concerned. It is to be sincerely hoped that this enthusiasm will increase in the succeeding years, and that future teams and individual competitors will enter the various competitions in the same friendly spirit of rivalry that pervaded the contests this year. I would like to congratulate the winning teams and other competitors upon their success, and to urge the losers to make still greater efforts.

The principal events of the day were two championship competitions to decide the best teams entered by the three Y.F.C. districts in a dairy-cow judging competition and a bacon-pig judging competition. For the former a beautiful silver cup was donated by Messrs. Wright, Stephenson, and Co., Ltd., but at the time of writing no definite arrangements had been made regarding a trophy for the latter.

Teams of three Y.F.C. members represented their respective districts in each of the contests, and in the dairy-cow competition half an hour was allowed in which to complete judging and twenty minutes in the case of the bacon-pig contest. Three dairy cows and three bacon pigs were judged in each instance and members of each team were permitted to confer with one another, the results finally being averaged to secure each team's performance.

The final results were as follows:—

Dairy-cow Judging Championship.

Western Bay of Plenty (C. Hamilton, Tauranga; R. F. Walford, Katikati; and C. Riddell, Paengaroa), 1.

Eastern Bay of Plenty (D. Rae, Waimana; R. Strachen, Edgecumbe; and M. Grace, Taneatua), 2.

Rotorua (D. Hunt, H. Hunt, and J. Russell, all of the Rotorua Y.F.C.), 3.

Bacon Pig Championship.

Eastern Bay of Plenty (D. Rae, Waimana; M. Grace, Taneatua; and F. Mitchell, Waimana), 1.

Western Bay of Plenty (G. Conway and E. Pinker, Paengaroa; and B. Caldwell, Te Puke), 2.

Rotorua (D. Hunt, H. Hunt, and J. Russell, Rotorua Y.F.C.), 3.

The two "Bay" teams put up a great fight to win the contests, and, although there was little difference between them, the Western Bay team was slightly superior in the dairy-cow championship, while the Eastern Bay team managed to even the score by winning the bacon-pig judging event. Rotorua's teams in both the contests were rather outclassed, but this was undoubtedly due to the youthfulness of the competitors and a consequent lack of experience. The experience gained, however, should prove of immeasurable benefit to these lads, and next year the Rotorua team will unquestionably give a good account of itself.

Next year the championship will be held at Rotorua, and the following year Tauranga will have the task of arranging the principal summer feature of Y.F.C. activities in this part of the Auckland Province. It is hoped in this way to stimulate greater interest and enthusiasm in the Y.F.C. movement not only in the young people themselves, but also in their parents and others who genuinely have at heart the welfare of the "farmers of to-morrow."

In addition to the championship contests facilities were also provided by the show committee in co-operation with the local Y.F.C. District Committee for individual stock-judging competitions conducted along similar lines as in recent years. First and second prizes of £1 and 10s. respectively were made available by the Agricultural and Pastoral Association for each of the two competitions held, and the number of entries in each were good, especially in the dairy-cow judging events.

The results are :—

Dairy-cow Judging Competition.

C. Riddell (Paengaroa Y.F.C.), 1.
R. F. Walford (Katikati Y.F.C.), 2.
G. Conway (Paengaroa Y.F.C.), 3.

Bacon-pig Judging Competition.

D. Rae (Waimana Y.F.C.), 1.
C. Hamilton (Tauranga Y.F.C.), 2.
G. Conway (Paengaroa Y.F.C.), 3.

The writer desires to record his grateful thanks to all who contributed either directly or indirectly to the undoubted success of the competitions. Special thanks are due to Messrs. Wright, Stephenson, and Co., Ltd., as donors of a challenge cup, to the executive of the Whakatane Agricultural and Pastoral Show for much encouragement and other material assistance, and to Messrs. T. W. Wardlaw and J. Rae for the use of their stock for judging purposes.

Young Farmers' Clubs in Great Britain.

THE regard in which the Young Farmers' Clubs movement is held in Great Britain is exemplified in the following extract from an English paper :—

"That the Young Farmers' Club movement is the greatest force in the country to resist the drift from the land was the view expressed by Mr. Herwald Ramsbotham, Minister of Pensions, when he addressed the annual general meeting of the National Federation in London on Thursday.

"Mr. Ramsbotham went on to say that when he was on the Board of Education the greatest difficulty of continuing rural education after school-leaving age was brought home to him, but that the growth of the Y.F.C. movement had supplied a solution. It was just as important for young farmers to have a thorough technical knowledge of their job as it was for those who worked in factories. In a survey of Great Britain's agricultural problems, the activities of the Clubs was the brightest spot."

It is of interest to note that the last annual report of the National Federation of Young Farmers' Clubs discloses that there are now 355 individual clubs in England and Wales, with a total membership, including associate members, of more than fifteen thousand.

Truck Farming in North Otago.

I. T. SMITH, Secretary, Palmerston South Club.

THE American style of truck farming is a form of farming seldom seen in this part of the South Island, and it is probably one of the most unusual types of farming there is. To begin with, little, if any, live-stock is kept, and all the produce is carted off the farm either to the nearest railway-siding or by motor-truck direct to the consumer. Truck farms are generally small, ranging between 50 acres and 100 acres, and as every acre is under cultivation there is ample work for two or more men all the year round.

Sometimes a few cows are kept, mainly, I think, to keep the "house going," as the income of these farms is nearly always in the late fall when the crops are harvested.

On a small farm it does not pay to keep horses, as the land used in growing chaff, oats, and grass, &c., for them to eat could be profitably growing a crop for the owner's financial benefit. As horses are out of the question it is only natural that the farmer turns to the tractor, and there is one type that is ideal for this class of farming. There are various makes of tractors, all very good, and the three-wheel model with the back wheels movable along the axle to suit the different widths of the drills or rows is most suitable.

A first-class heavy land is essential, as also is a good range of implements. A digger plough is undoubtedly the best type of plough to use, because it is advisable to plough deeply. The digger combines this feature with a breaking-up motion, and one must have a good depth of free soil to enable the plants to grow freely and to use the moisture the soil naturally holds longer. It is my honest opinion that deep ploughing is half of the working up, and it follows that there is a corresponding increase in yield.

Part of Mr. Smith's swede crop, which has been grown for trucking purposes.

Lucerne is grown chiefly for hay, because there are generally at least three cuts of hay, and in a season like this baled lucerne hay proves to be a profitable undertaking.

Swedes for stock feed are trucked for any distance up to two hundred miles, and with a good crop of turnips the grower should be considerably in pocket at the end of the year if there is a favourable season. In connection with turnips, it is our practice to buy old gummy ewes in the late autumn and pull their teeth if they have any left so that they will not bark the swedes. The sheep are then put on to the turnips to eat the

tops, which would be otherwise wasted as a food, and they are nearly always sent away fat by the time the turnip season is finished.

Wheat, oats, and barley have recognized prices, and these crops should be grown in rotation with the green crops. Carrots are grown in some cases, although not in large quantities, because there is much more work entailed in their cultivation. There is generally a great demand for them, principally to rabbiters who are endeavouring to reduce the rabbit population by poisoning.

Potatoes are grown universally by the truck farmers, who sometimes have anything up to 10 acres or more. After they are dug it is advisable to hold them if storage space is available, until the demand is greater, with the resultant high prices.

Praise for Y.F.C. Students at Lincoln College.

"WE would be grateful if in some way you could indicate to the Federation how impressed we are with the quality of the young farmers who are entering upon the college farming courses. We trust that an increasing number will be enabled to derive the benefits of contact with this centre of scientific and practical agriculture, and that the Federation will continue to guide and assist in the development of these farmers of the future."

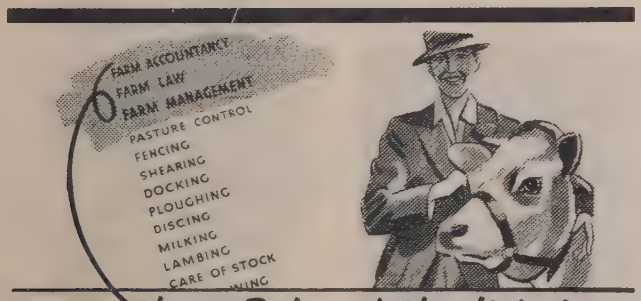
Such is the appreciation expressed by the Canterbury Agricultural College Old Students' Association in a letter to the chairman of the Otago and Southland Council of the Federation, Mr. A. C. Cameron, dealing with this year's Lincoln Scholarship.

"It was very gratifying to learn that twenty young farmers had made the effort to secure this scholarship," continues the letter. "It is pleasing indeed that such interest is being taken by members of your Federation in the college farming courses. We are particularly glad, also, that partly as a result of our scholarship such a firm as the Southland Frozen Meat Co., Ltd., has generously decided to assist other members to enter Lincoln.

"The students who have entered the college as a result of the work of your selection committee over the period of the past three years have been outstanding in diligence, leadership, and influence. They are the very best type of student whom we have in the diploma farming courses. Accordingly, I have been instructed by the executive committee of the association to extend to you again our appreciation for the continued good work of your association committee, and to assure you that all at the college are greatly impressed with the calibre of the young farmers who are being enabled to enter the courses which are available.

"I may say at this stage that the first winner of the Old Students' Scholarship, J. W. T. Anstey (1937), of Hunter, has just completed his two year diploma course and has gone back to the land. Anstey was the first of the young farmers to enter the college, and he has been followed by all the others who were assisted by your Federation or by the meat companies or who came on their own resources as a result of the interest which had been created.

"We have written to Anstey congratulating him upon his record, which, during his two years at Lincoln, included the college athletic championship, the tennis championship, and runner-up for the College Gold Medal, which is awarded to the leading diploma student. He exerted a good influence among his fellow-students, and has set a standard of diligence and leadership which his successors will not find easy to equal."



these 3 head the list of

WHAT EVERY YOUNG FARMER SHOULD KNOW

Every young farmer should back up his practical experience with a course in business training. Here is a course specially prepared for the young and ambitious farmer—containing lessons in Book-keeping, Business Management, and Farm Law—suitable for every type of sheep, mixed, or dairy farm. Start to-day. Clip the coupon, fill in your name and address, and post now for Free Prospectus. Remember, it costs you nothing to write, yet it may mean the savings of hundreds of pounds in the future.

SEND FOR FREE PROSPECTUS NOW!

Course includes Banking Mortgages, Farm Finance, Taxation, and general Farming Business.

THE FARM ACCOUNTING ASSOCIATION OF N.Z. INC.
P.O. BOX 693, DUNEDIN. Correspondence Dept. F9.

Name: .....

Address: .....

J.A.

Y.F.C. Broadcasts from 2YA.

THE following Y.F.C. broadcasts are conducted fortnightly from Station 2YA on Tuesdays from 7.40 p.m. to 8 p.m.

May 2nd: "Winter Milk-production," by K. G. Lattimer, Chairman of the Karawaka Y.F.C.

May 16th: "Crops," by J. D. Woodley and D. Lynch, Fitzherbert Y.F.C.

May 30th: "Practical Farm Plantations," by members of the Hunterville Y.F.C.

June 13th: "Piggery Layouts," by A. O'Sullivan, A. Johnson, and W. Brunton, of Cardiff Y.F.C.

Dannevirke Club's Cricket Match.

K. BATEMAN, Dannevirke Club.

A CRICKET match was played on 26th February between two teams picked from members of the Dannevirke Club, one team being captained by S. K. Carswill and the other by G. N. Buchanan.

The match was played on the Dannevirke Showgrounds, and the result was a win for Carswill's team, which scored 242 runs against the 138 runs scored by Buchanan's team.

Ideal weather conditions prevailed.

Bowled middle stump—an incident in the Dannevirke Y.F.C. cricket match.

Western Bay of Plenty Field Day.

A. V. ALLO, District Secretary, Tauranga.

Members judging the dairy cows at the Western Bay of Plenty District Committee's field-day.

ARRANGED by the Western Bay of Plenty Committee, a successful field-day was held on the farm of Mr. T. Comber, Gate Pa, on 11th February, consisting of stock-judging and demonstrations.

More than one hundred club members and supporters were present, all clubs being well represented. Five club members travelled nearly seventy miles to attend.

After lunch, which was provided by the District Committee, club members judged the bacon pigs and dairy cows. When the judging was completed, Mr. D. S. Ross, District Chairman, demonstrated on the pigs and gave an address on bacon-production and points of a baconer.

Mr. F. H. Hartstone, official demonstrator to the Tauranga Jersey Club, gave an interesting demonstration of the Jersey cows, and Mr. J. H. Lever, Otumoetai, demonstrated a Jersey bull.

Afternoon tea was then served, concluding a very interesting day, the first of its type ever held in the Bay of Plenty.

Stock were provided by Mr. G. Hynds, Gate Pa (bacon pigs), and Mr. T. Comber, Gate Pa (Jersey cows).

The prize-winners were—

Bacon Pigs.—D. Thomas, Katikati, 1; E. Pinker, Paengaroa, 2; B. Caldwell, Te Puke, 3.

Dairy Cows.—C. Hamilton, Tauranga, 1; R. Walford, Katikati, 2; C. Riddell, Paengaroa, 3.

New Clubs Formed.

THE following new clubs have been formed during the past two months:—

Eastern Southland District.—Balfour; Five Rivers; and Maitland.
North Taranaki District.—Inglewood; Mangamahoe; Mangorei; and Tikorangi.
Wanganui District.—Mangaweka.
Southern Hawke's Bay District.—Hastings.
Northern Hawke's Bay District.—Matapiro.
Waikato District.—Tahuna.
Auckland District.—Franklin.
Warkworth District.—Port Albert.

This brings the Dominion total up to 184 clubs, 72 being situated in the South Island and 112 in the North Island.

Two Y.F.C. Weddings at Dannevirke.

K. BATEMAN, Dannevirke Club.

MR. G. N. BUCHANAN, of Waitahuna, Dannevirke, a prominent member and committeeman of the Dannevirke Young Farmers' Club, was recently married to Miss Mary Booth, daughter of Mr. and Mrs. W. H. Booth, "Middle Run," Carterton.

Prior to the wedding the club members met Mr. Buchanan in the Farmers' Union meeting-room, where the District Secretary, Mr. J. W. Palmer, Department of Agriculture, on behalf of the club, presented Mr. Buchanan with a barometer bearing an inscription in the form of the circular Y.F.C. badge.

The opportunity was taken by members to wish both Mr. Buchanan and his future wife the best of luck.

Chairman Married.

The Chairman of the Dannevirke Young Farmers' Club, Mr. T. P. Blyth, was recently married to Miss Betty Wilson, daughter of Dr. and Mrs. Alexander Wilson, of Wanganui. Members of the Dannevirke Club met in full force on the previous Saturday evening to wish him good luck and happiness.

Mr. G. N. Buchanan.

The District Secretary, Mr. J. W. Palmer, Department of Agriculture, Hastings, commended the good work done by Mr. Blyth in promoting the welfare of the club in Dannevirke, and wished him every success and happiness in his married life. Other speakers included Messrs. H. S. M. Quigley (secretary of the Dannevirke A. and P. Association and of the Farmers' Union), G. J. J. Buchanan, L. Feierabend, Selby Thompson, Norman Buchanan, and L. Tickner.

Mr. Blyth was presented on behalf of the club with a beautifully mounted barometer and thermometer.

Mr. Blyth thanked members for their kindness and good wishes, and stated that he would continue to do all he could to make the club a great success.

Both Mr. Palmer and Mr. Quigley spoke of the wonderful progress and usefulness of the club, and stressed the value of having so many young farmers meeting together regularly for instructional and social purposes. Mr. Quigley assured members that they had the continued good will of the A. and P. Association and the Farmers' Union.

Mr. Palmer was thanked for making a special trip from Hastings to be present at the gathering.

Among the Clubs: Reports on Activities.

MOST of the clubs have held their annual meetings during March, but many of the reports are not yet to hand. On this account the full list of clubs, indicating secretaries, &c., has been held over until next month, as it is possible that the remaining reports, when received, will reveal a number of changes in officers.

Western Southland.

Dipton.—Annual meeting. Decided to hold a concert and dance in an endeavour to assist finance. Officers elected: Advisory President, Mr. D. McDonald; Advisory Members, Messrs. D. MacRae and T. Nevin; Club Chairman, A. Mudie; Secretary, J. R. Palmer (re-elected); Treasurer, M. English. The latter part of the meeting was devoted to discussing means of making club meetings more attractive. At the conclusion members adjourned to the library, where they were entertained at supper by members of the W.D.F.U.

Thornbury.—Special meeting to elect a secretary to replace Mr. G. A. Fallow, who has taken on a Lincoln College Scholarship. Mr. K. E. McKenzie was elected to fill the position.

Woodlands.—Annual meeting. Officers elected: Advisory President, Mr. J. Middlemiss; Club Chairman, A. Campbell; Secretary, L. Middlemiss; Treasurer, H. McKenzie. At a previously unreported meeting practical demonstrations were given on a stud Romney ram and a stud Southdown ram by Messrs. W. E. Hunt and J. V. Watson respectively, followed by a talk on "Stock-judging" by Mr. Gibson Smith, of Dacre.

South Otago.

Balfour.—Discussion on proposed North Island tour. Lantern lecture by Mr. S. D. Blomfield, Dominion Fertilizers, Ltd., on "Pasture Management."

Clinton.—Club debate the subject being "That Farmers should Marry." The speakers were E. Rosevere and C. Turnbull (affirmative). R. Roy and C. McLauchlin (negative). The affirmative supporters were awarded the decision by a narrow margin. The debate was followed by impromptu speeches by club members.

Lawrence.—Lecture by Mr. A. F. Greenall, Department of Agriculture.

Milton.—Annual meeting. Officers elected: Advisory President, Mr. A. B. Stewart; Club Chairman, R. Bransgrove; Secretary and Treasurer, D. Tweedie.

Central Otago.

Arrowtown.—Addresses by Messrs. Watson and Mathieson, visiting Australian farmers, on "Farming Conditions in Australia."

Roxburgh.—Annual meeting. Officers elected: Advisory President, Mr. R. T. Kinaston; Club Chairman, L. Henderson; Secretary and Treasurer, L. George.

Dunedin.

South Taieri.—Report by Club Secretary on the recent meeting of the District Executive; discussion ensued. Preliminary arrangements made for a ploughing match in May.

North Otago.

Enfield.—Business discussion. Decided on a general canvass for new members. An interesting bulletin of the Canterbury Chamber of Commerce on the subject of "Tractors" was read by B. A. Johnston (Chairman), followed by discussion.

Ashburton.

Ashburton.—Short talk by R. Hamilton (club member) on "The Mating of a Cock Pheasant with Bantams." Lecture by Mr. Leigh on "Trees in the Domain."

Mayfield.—Proposal for field-day in April; subcommittee set up to arrange programme and date and to report to next meeting. Advisory President and Chairman congratulated the debating team on their performance at the inter-club debate held at Methven; the team leader, R. M. Mulligan, replied. Addresses by Mr. G. B. Murdoch on "Artificial Insemination" and Mr. J. W. Kingan on "Lucerne Growing." Short talk on "The Electric Fence" by E. H. Mulligan (club member). Questions were submitted to the meeting by K. Moore (club member).

Christchurch.

Dunsandel.—Annual meeting. Officers elected: Advisory President, Mr. H. Wright; Club Chairman, D. H. Johnston; Secretary, A. T. Wright; Treasurers, W. Nicol and N. J. Brown.

Ellesmere.—Annual meeting. Officers elected: Advisory President, Mr. G. W. R. Osborne; Club Chairman, L. C. Coe; Secretary, D. Hurford; Treasurer, D. G. McLure.

Little River.—Annual meeting. Officers elected: Advisory President, Mr. E. E. Patten; Club Chairman, R. J. Chapman.

Marlborough.

Blenheim.—Discussion *re* proposed district tour. Impromptu speeches; each member submitted a subject or a question. These were drawn by members from a hat, speakers being allowed three minutes in which to prepare their talk. At previously unreported meetings Mr. Palk spoke on "Farm Accountancy," and included "Land and Income Tax, and Social Security Papers"; and Mr. Gough, an English farmer, addressed the meeting on "Young Farmers' Clubs in England," also giving his impressions of New Zealand farming and a few points of English farming procedure.

Wairarapa.

Alfredton.—Annual meeting. Officers elected: Advisory President, Mr. J. L. Heckler; Club Chairman, E. Edmonds; Secretary, N. C. Napier; Treasurer, W. Heckler.

Ballance.—Annual meeting. Officers elected: Advisory President, Mr. R. A. Burke; Club Chairman, J. F. Bremner; Secretary, H. C. Wilton; Treasurer, Mr. Ross.

Carterton.—Annual meeting. M. Knutson elected Secretary.

Featherston.—Annual meeting. Discussion concerning programme for ensuing year.

Greytown.—Annual meeting. Officers elected: Advisory President, Mr. R. Tilson; Club Chairman, J. Yoeman; Secretary, V. Gates; Treasurer, G. Montgomery. Donation received from Mr. R. Beu; Mr. Knowles donated rubber stamps. At the previous

meeting the Y.F.C. camps were discussed, and also the proposed district tour. A very successful "Question Evening" was held, the response from members being excellent.

Mangatainoka.—Annual meeting. Officers elected: Advisory President, Mr. F. G. Ward; Club Chairman, G. H. Cotter; Secretary and Treasurer, H. McG. Rentoul.

Masterton.—Annual meeting. Officers elected: Advisory President, Mr. W. James; Club Chairman, J. Coom; Secretary, C. A. Mackay; Treasurer, Ken McGillivray. At this meeting Mr. W. F. McLaren, who is Immediate Past President of the Federation, and who has been associated with the Masterton Club since its inception in December, 1934, was elected a life member of the club.

Tinui.—Annual meeting. Officers elected: Advisory President, Mr. J. Speedy; Club Chairman, P. Balfour; Secretary and Treasurer, R. Spooner.

Manawatu.

Bunnythorpe.—Annual meeting. Officers elected: Advisory President, Mr. J. Linklater; Club Chairman, J. Wood; Secretary and Treasurer, MacGregor Donald.

Feilding.—Annual meeting. Officers elected: Advisory President, Mr. H. Brewster; Club Chairman, R. Mason; Secretary and Treasurer, R. W. Durrant. At the conclusion of the business a lecture was given by Mr. H. de O. Chamberlain, Department of Agriculture, on "Top-dressing."

Fitzherbert.—Annual meeting. Officers elected: Advisory President, Mr. Harrison; Club Chairman, N. James; Secretary and Treasurer, J. D. Woodley. A general discussion regarding a suggested imposition of fines for absent members; there was a strong feeling against the adoption of such a system. Arrangements were made for a club cricket match, Aokautere members *v.* Linton members.

Johnsonville.—Annual meeting. Officers elected: Advisory President, Mr. A. Horrobin; Club Chairman, H. Abradsen; Secretary, G. Bryant; Treasurer, P. Smith.

Kairanga.—Meeting held partly as a social function. Mr. E. Bruce Levy, Director, Grasslands Division, Plant Research Bureau, gave an interesting address, illustrated by lantern slides, on "Farming Overseas." A number of vocal and instrumental items were rendered by members and friends, and novelty dances and community singing continued until a late hour. The evening was a great success, there being an attendance of over sixty members and friends.

Kimbolton-Kiwitea.—Inauguration of club-membership drive. Address by Mr. F. H. Billing, of Kimbolton, on "Book-keeping, Farm Accounts, and the Law relating to Cheques."

Levin.—Discussion on judging competitions at Shannon sports; decided to enter two teams. Arrangements for a visit to General Motors Assembly Works and the Gear Meat Co. Lantern lecture by Mr. E. Bruce Levy, Director, Grasslands Division, Plant Research Bureau, on "Farming Overseas." The meeting was run as a "Father's Evening," members being asked to bring their fathers in order to give them an inside knowledge of club work and activities. The meeting proved very popular, more than twenty visitors being present.

Oroua Downs.—Annual meeting. Officers elected: Advisory President, Mr. R. Craig; Club Chairman, A. Nichols; Secretary and Treasurer, J. E. Dench.

Rangiwahia.—Annual meeting. Officers elected: Advisory President, Mr. Billinghurst; Club Chairman, M. Wood; Secretary and Treasurer, K. O'Dwyer.

Pohangina Valley.—Films on agricultural subjects exhibited by Mr. G. S. Robinson, Department of Agriculture.

Shannon.—Annual meeting. Officers elected: Advisory President, Mr. C. Guerin; Club Chairman, N. Guerin; Secretary and Treasurer, C. Watson.

Whakarongo.—Annual meeting. Officers elected: Advisory President, Mr. R. G. Scott; Club Chairman, B. Dickson; Secretary, R. G. Scott, jun.; Treasurer, E. Morris.

Woodville.—Discussion *re* proposed Y.F.C. camp at Hastings. Lecture by Mr. H. B. Low on "Land-values."

Wanganui.

Bulls.—Annual meeting. Officers elected; Advisory President, Mr. C. E. Vile; Club Chairman, S. G. Avery; Secretary, S. H. Last-Harris; Treasurer, C. S. Harris.

Mangaweka.—Address by Mr. H. Weymouth on "How to Conduct a Meeting."

Marton.—Meeting supported suggestions put forward by the Wellington Council Secretary at the last Council meeting. Arrangements for a field-day. Report by Chairman on the stock-judging competitions at the recent Marton A. and P. Show; the competitions proved a great success. Short talks by members as follows: "Ensilage" (F. H. Smith); "Eradication of Gorse" (L. McLeay); "Fencing" (R. Shield); "Pig Lay-out" (F. L. Smith); "General Appearance of Farms" (J. M. Cranstone).

Westmere.—Recommendations to District Committee that a motto should encircle the pocket badge on Y.F.C. blazers, that the enamel lapel badges remain as they are, and that a Y.F.C. tie should be adopted. Arranged for a party of club members to meet the North Taranaki touring party at Kai Iwi and accompany them to Mr. G. F. Moore's property, "Bushey Park." Club radio talk on "Fencing" read and discussed. Arrangements finalized for a cricket match *v.* the Farmers' Union. At the previous meeting F. Davies (a club member) addressed the meeting on his holiday in Honolulu, dealing in particular with the pineapple-canning industry, the sugar-cane plantations, and a dairy which he visited.

South Taranaki.

Alton.—Arrangements for the annual sports meeting and dance. Date fixed and judge appointed for calf-judging competition. Lecture by Mr. Ramsbottom, of Patea, on his tour of England, the speaker making a comparison of English and New Zealand farming methods. A short discussion was held on the proposed Australian tour by South Taranaki members. A social evening, including community singing, followed.

Eltham.—Discussion *re* the forthcoming Y.F.C. camp at Hastings and the proposed trip to Australia. Arrangements for a return cricket match with the Pukengahu Club. M. Tarrant (club member) was congratulated on the able manner in which he broadcasted the club radio talk on "Top-dressing" on 7th March. Address by Mr. Hessel, of Eltham, on "Farm Law." The annual picnic was held on 9th March, a number of athletic events being undertaken, including 100 yards, 220 yards, and 440 yards handicap, both for members and open; long jumps, throwing the cricket ball, boys' cycle race, men's half-mile cycle race, tilting-the-ring in cars, clock-golf, nail-driving, chain-stepping, &c. A dance was held in the evening, when trophies won during the day were presented by the district Y.F.C. Secretary, Mr. J. E. Davies. An attendance of more than three hundred was recorded.

Hawera.—Lecture by Mr. P. Trim on "The Propagation of Fruit-trees," the speaker explained and demonstrated the different methods of grafting and budding. A visit was made to the Patea Freezing Co.'s works, a party of eighteen members being conducted over the works by Mr. Pettigrew, the company's secretary.

Kaponga.—Annual meeting. Officers elected: Advisory President, Mr. C. P. Gordge; Club Chairman, P. Edgecombe; Secretary and Treasurer, J. Kissick. Cricket match *v.* Pukengahu Club resulted in a win for Kaponga by 86 runs to 53.

Whakamara.—Discussion *re* forthcoming Hastings educational week. Talk by the Club Chairman on the recent visit to the Wanganui wool-store and wool-sale; Mr. L. Caldwell classed some of the specimens of wool for the benefit of those who had not been able to undertake the visit.

Whenuakura.—Annual meeting. Officers elected: Advisory President, Mr Lee Honeyfield; Club Chairman, W. Honeyfield; Secretary, J. Fairweather; Treasurer, J. Derrett.

North Taranaki.

Cardiff.—Five teams picked to judge in the Y.F.C. stock-judging competitions at New Plymouth Autumn show. Mr. A. O'Sullivan congratulated the Cardiff A team on winning the stock-judging at Stratford Show last November. Address by Mr. G. A. Blake, Department of Agriculture, on "Pig Lay-outs"; Mr. Blake's object was to prepare members for a radio talk to be broadcast later in the year.

Hillsborough-Tarurutangi.—Club debate, the subject being "Hay and Roots *v.* Hay and Silage." At previously unreported meetings addresses were given by Mr. R. P. Anderson on his activities at Massey College and Mr. A. G. Elliott, Department of Agriculture, on "Pastures, Hay, and Silage."

Inglewood.—Films exhibited, "From Meadow to Market" and "How to Grow Hogs." Mr. C. J.

MASSEY COLLEGE.

SHORT COURSES 1939.

WOOL CLASSING:	9th May to 21st July, or 6th October.
SHEEP FARMING:	22nd May to 13th June.
DAIRY FARMING:	19th June to 30th June.
HERD TESTING:	4th July to 21st July.

ANNUAL MEETING OF SHEEP FARMERS 7th, 8th, 9th JUNE.

Full particulars may be obtained on application to:
THE REGISTRAR, P.O. BOX 367, PALMERSTON NORTH.

Hamblyn, Fields Superintendent, Department of Agriculture, addressed the meeting on Y.F.C. matters generally. Mr. A. Paynter, of Blenheim, gave a comparison of farming in Marlborough and Taranaki. Mr. D. O'Sullivan (Jersey breeder), of Inglewood, spoke specially to those members who had taken part in the recent Jersey Club's field-day.

Mangamahoe.—Discussion *re* forthcoming district tour of North Island. Comments on the judging competitions at the New Plymouth show. Address by Mr. N. G. Ross, manager of the Mangorei Dairy Factory, on "Grading, and the Manufacture of Butter."

Mangorei.—Demonstration by Mr. Pearce on "Dairy Type in Cows." Mr. Pearce used cows from his own herd to illustrate the points he desired to stress; the demonstration was given in preparation for the stock-judging at the New Plymouth Show.

Okau-Tongaporutu.—Discussion on club activities generally. Mr. A. G. Elliott, Department of Agriculture, congratulated the club on winning the stock-judging competition at the New Plymouth Show. Mr. E. Foreman and N. Bishell (club member) gave talks on the recent visit to the Waitara Freezing-works.

Tikorangi.—Talk by Mr. G. A. Blake, District Y.F.C. Secretary, on club matters generally. Address by L. A. Alexander on "Pig Management, and the Cost of Keeping Pigs Through the Winter Months." Members of the Farmers' Union were present by invitation.

Toko.—Selection of teams for stock-judging. Discussion *re* sports meeting to be held on 1st April. Club members had assisted the W.D.F.U. in running their annual sports meeting in February, and in return the W.D.F.U. will assist the club at the forthcoming gathering, in which neighbouring clubs will participate.

Southern Hawke's Bay.

Dannevirke.—Letters from Dominion Organizing Secretary, Mr. S. Freeman, congratulating the club on its very fine effort in conducting the special Y.F.C. stock classes at the recent Dannevirke A. and P. Show. Discussion *re* Y.F.C. members acting as junior judges at A. and P. shows; list of suitable members to be prepared, and the A. and P. Association to be asked to appoint them as associate judges. Mr. G. J. J. Buchanan was thanked for his donation of a fat wether for the weight-guessing competition at the show. The proceeds from this competition are to be divided between the club and the Women's Rest-room Fund. The money received by the club is to be set aside for a cup, to be called the "Buchanan Cup," for a competition to be arranged later. Mr. J. W. Palmer, Department of Agriculture, raised the point of baled-hay classes at the show. It was agreed that an effort be made to encourage young farmers to compete strongly in this section at future shows. Mr. Palmer gave an interesting talk on "Pasture Management," touching on the use of fertilizers, the need for the use of certified seed, and various other aspects.

Hastings.—Lecture on "Grassland Management" by Mr. J. W. Palmer, Department of Agriculture.

Norsewood.—Lecture by Mr. Pattison on "Herd-testing."

Onga Onga.—Members of the club journeyed to Hastings and paid a visit to the Tomoana Freezing-works, where the manager, Mr. Kirkpatrick, showed them round. Wattie's Canneries were then inspected, and a visit was also paid to Messrs. Williams and Kettle's seed-dressing station. Nineteen members took part in the trip.

Takapau.—Arrangements for a dance. Lecture by Captain Selby on "Territorials in New Zealand." The interest taken in the subject was shown by the number of questions asked at the completion of the talk.

Northern Hawke's Bay.

Matapiro.—Officers elected: Advisory President, Mr. A. W. Whyte; Club Chairman, D. Beamish; Secretary, H. Pearce; Treasurer, R. Doole.

Meeanee.—Business meeting. Programme for sports meeting put before members by Sports Committee and approved. Ladies' Hall Fund Committee granted permission to have a stall on the grounds, provided no goods stocked that would compete with the catering. Three new members elected, bringing the club membership up to fifty-four.

Putorino.—Business meeting. Arrangements for annual meeting, 28th March. Discussion *re* field-days and tour. Cost of supper after meetings to be defrayed from club funds. Short talks by members to be encouraged and as many as possible given at each meeting, members to be in readiness when called upon.

Poverty Bay.

Te Karaka.—Address by T. A. Phillips entitled "Some Impressions of Older Lands." Mr. Phillips spoke briefly of London, Gretna Green, Ireland, Norway, Sweden, Finland, Danzig, and the United States of America.

Tolaga Bay.—Address by Mr. E. M. Bates, District Y.F.C. Secretary, on "The Y.F.C. Movement." Arrangements for a dance. Annual meeting to be held on 18th March. Impromptu speeches made by members. At the previous meeting the following talks were given: "Permanent Water-supply from Springs" (Mr. J. Robison); "How to Build a Concrete Tank, using an Old Tank as a Mould" (Mr. T. Post), and "How to Build a Brick and Concrete Trough" (Mr. L. Donald). A general discussion on different methods of farm draining followed.

Taumarunui.

Taumarunui.—Annual meeting. Officers elected: Advisory President, Mr. T. Duncan; Club Chairman, A. Harvey; Secretary, L. G. Smith; Treasurer, L. McKinnon. Members visited the Ohura Show and took part in a judging competition on dairy cows; demonstrations were given by the show judges on dairy cattle and Romney sheep. A visit was also paid to the farm of Mr. C. G. Thurston, Hikumutu, where demonstrations were given on Romney sheep; a judging competition among members created quite an interest. Afternoon tea was provided.

Te Kuiti.

Aria.—Messrs. C. Walker and K. M. Montgomery, Department of Agriculture, exhibited sound films on agricultural subjects.

Otorohanga.—Business meeting. Discussion *re* programme of lectures, demonstrations, &c. Instructions to delegates to Council meeting. The following field-days were held recently—On Mr. S. Rankin's farm: demonstration by Mr. Rankin on Clydesdale horses; on Messrs. Tipping Bros.' farm: demonstration by the Advisory President, Mr. S. K. Tipping, on the judging of Romney sheep, also an inspection of a pick-up hay-press; on Mr. R. Sanderson's farm: demonstration on the judging of Jersey cows by Mr. Sanderson, and the judging of bacon pigs by Mr. R. Davis. A stock-judging competition was held at the Otorohanga A. and P. Show, sixteen local club members competing, together with eleven members from the Aria and Te Anga Clubs. R. Doe (Te Anga) won the first prize of £1, together with a miniature cup presented by Mr. K. F. O. Smith, and holds the F.A.C. Challenge Cup for the year; R. Miln (Te Anga) won the second prize of 10s.; and O. Gordon (Te Anga) tied with J. Croasdale (Otorohanga) for third place. Very keen public interest was aroused in the competition. On Saturday, 11th March, a team from the Kakepuku Club played a match with the Otorohanga Club on the Otorohanga Domain. Each side played fourteen men. Otorohanga made 99 runs in the first innings and 14 runs in the second innings without the loss of a wicket. Kakepuku made 28 and 79 runs. Otorohanga won with 13 wickets in hand.

Eastern Bay of Plenty.

Edgecumbe.—Discussion on proposed tour. Final arrangements for debate against the Taneatua Club. Sound films were exhibited by Messrs. C. Walker and C. R. Taylor, Department of Agriculture, dealing with "Caterpillar Tractors" and "Seed Germination."

Opotiki.—Arrangements for a practice debate in preparation for the district debating competition; subject chosen, "That the Flat Country between Tablelands and Woodlands is better for all-round Farming than Tablelands, Woodlands, and Paerata." Discussion *re* programmes of lectures, &c.

Taneatua.—Business meeting. Practice debate arranged. Date fixed for annual meeting.

Waimana.—Annual meeting. Officers elected: Advisory President, Mr. N. Macdonald; Club Chairman, L. Macdonald; Secretary, D. Woolfield; Treasurer, R. A. Bell.

Western Bay of Plenty.

Katikati.—Annual meeting. Officers elected: Advisory President, Mr. H. Capamagian; Club Chairman, R. F. Walford; Secretary, T. J. Pamment; Treasurer, J. B. Sutton.

Omokoroa.—Lecture on "Malpresentation" by Mr. F. Keam.

Paengaroa.—Programme finalized for the club picnic sports; a dance to be held in the evening. Prizes and trophies donated for twenty-two events. Special meeting to be held to select debating teams. Address by Mr. Alan Jordan, of Tauranga, on "The Tea Industry and Big Game Hunting in Ceylon"; also an address by Mr. Peter Hutt, formerly of Malay, on "The Rubber Industry in Malay; the Life of a Sinaderi on a Plantation."

Te Puke.—Business meeting. Arrangements for a debate. Date of annual meeting fixed for 24th March.

Waihi.—Practice debate; subject, "That the Introduction of Machinery has done more Harm than Good." Each member spoke for the negative, and Mr. A. H. Blackmore put forward the argument for the affirmative. At the annual meeting the following officers were elected: Advisory Prssident, Mr. H. Edwards; Club Chairman, A. Sutton; Secretary, A. Blackmore; Treasurer, M. Robinson.

Rotorua.

Horohoro.—Business meeting. Arrangements for proposed tour of East Coast district—Ruatoki, Te Kaha, Tikitiki, and Mohaka development schemes: the tour will take six days, commencing on 4th June.

Putaruru.—Business meeting. Discussion with regard to increasing membership and canvassing the district, also in regard to Ruakura Y.F.C. rally, the proposed district tour, radio talks, debates, and the Y.F.C. court at the Waikato Winter Show, &c. Arrangements for attending the Jersey breeders' demonstration; also for a stack-building competition.

Waikato.

Kakepuku.—Mr. E. R. Marryatt, Department of Agriculture, Ruakura, gave a lantern lecture on "Feed Flavour Control, and the Control and Management of Pastures." Mr. A. C. Burgess, also of Ruakura, gave a lecture on "Top-dressing."

Tahuna.—Discussion *re* raising of funds and also gaining publicity for the club. Dance to be held; sub-committee appointed. Address by Mr. I. R. F. Campbell, of Morrinsville, on "The Mode of Meeting Procedure."

Te Kowhai.—Address by Mr. T. E. Rodda, Manager, Ruakura Farm (Department of Agriculture), on "Farm Forestry." This was followed by a general discussion of farming topics.

Auckland.

Mangatawhiri.—Arrangements for a dance. Discussion *re* scholarship; members to forward their applications before next meeting. Club debate, the subject being "Sheep-farming *v.* Dairy-farming." Four speakers took part on each side; the judge gave the award to the supporters of dairy-farming.

Whangarei.

Maungakaramea.—Annual meeting. Officers elected: Advisory President, Mr. R. N. Attwood; Club Chairman, C. W. Timperley; Secretary and Treasurer, G. R. Porter. At the previous meeting an impromptu debate was held, the subject being "That Sheep-farmers have a Harder Life than Dairy-farmers."

Dargaville.

Arapohue.—The District Y.F.C. Secretary, Mr. E. H. Arnold, outlined the proposed tour of South Auckland and Bay of Plenty, finishing up at the Y.F.C. rally at Ruakura in July. Arrangements made for a field-day at Paparoa, with stock demonstrations and judging competitions. A number of questions on farming subjects were asked and discussed.

Marohemo.—Annual meeting. Officers elected: Advisory President, Mr. J. Roadley; Club Chairman, J. Petrie; Secretary, L. Maras; Treasurer, J. Brooks.

Ruawai.—Business meeting. Discussion *re* club activities. The District Y.F.C. Secretary, Mr. E. H. Arnold, outlined the proposed district tour, and also submitted a programme to assist the club with debating, &c.

Kaitaia.

Broadwood.—Impromptu speeches by club members as follows: "Management of Paspalum" (J. McKenzie); "Farming in New South Wales" (D. Newman); "Management of Hill Country" (F. Hick); "Handling of Ewes and Lambs" (C. McKenzie); "Pigs at Paerata College" (A. Copland).

Kaitaia.—Discussion on the proposed winter tour to South Auckland and Bay of Plenty; also the Y.F.C. rally to be held at Ruakura in July. It was announced that the cup for the bacon-pig-judging competition at the Mangonui A. and P. Show was won by J. H. Gray of the Umawera Y.F.C. In the National Bacon-pig championship, pigs exhibited by two members of the Kaitaia Club were placed second and third, judged on the hoof at the Mangonui Show. Lantern lecture by Mr. E. B. Glanville, Department of Agriculture, on "The Consolidated Land Areas"; the speaker showed how these areas can be brought in and made to grow first-class pasture. At the previous meeting Mr. W. A. Beattie, Supervisor, Northland Pig Council, gave a lecture on bacon-pig judging, using diagrams showing the wrong and correct types of pigs. At the annual meeting, held on 22nd March, the following officers were elected: Advisory President, Mr. E. W. Hansen; Club Chairman, H. Hooper; Secretary, T. W. Flinn; Treasurer, A. Jameson.

Oruru.—Lecture by Mr. E. B. Glanville, Department of Agriculture, on "Manures, and Pasture Establishment."

Umawera.—Annual meeting. Officers elected as follows: Advisory President, Mr. K. Harrison; Club Chairman, A. Harrison; Secretary and Treasurer, B. Gray.

Health Notes for the Farm.

Contributed by the Department of Health.

Personal Hygiene and Care of the Body.

FROM a health point of view the terms "cleanliness" and "personal hygiene" are practically the same. Personal hygiene is a distinct aid to health, and therefore to efficiency. There can be no question of its importance—so much so that instruction in personal hygiene is of inestimable value in primary schools in order that life-long habits of right living may be inculcated in each individual.

We may now consider what steps must be taken to keep the various parts of our body in good order.

Care of the Skin.

The skin, by surface radiation and evaporation, regulates the temperature of the body. It is also an excretory organ, as it contains innumerable sweat glands, the ducts of which open on the surface. There are other glands of the skin—sebaceous glands. The skin is therefore exuding sweat and sebaceous matter which, mixed with epidermic scales which have been shed and scurf, accumulates on the surface and must be periodically removed if the body is to be kept in a clean and wholesome condition.

Some of this matter penetrates into the underclothing next to the skin, thus rendering periodical changes of underclothing necessary. Dirty skin and dirty clothes are not only disagreeable to the senses, but they are also injurious to health, as they lessen the excretion of waste materials on the surface of the body and therefore throw more work on the internal excretory organs. Uncleanly people whose skin is too clogged with dirt to perform its function are also more liable to chill than those whose skins are clean.

To keep the skin in good health a warm bath should be taken at least once a week, preferably more often, and at night in order to avoid a chill. Cold baths are less cleansing than hot baths, but they are more stimulating and invigorating. The best time for a cold bath is after rising in the morning. Very young and delicate people do not, as a rule, stand cold baths well, and for them a tepid sponge is preferable.

Swimming-baths are of great value. Not only do they afford opportunity for acquiring a valuable accomplishment, but they provide physical exercise in a form that is most potent for the promotion of health. Where school baths have been instituted they have been found to lead not only to greater cleanliness of underclothing and person among the pupils, but to increased self-reliance, better moral tone, better mental attainment, and most decidely better physical development.

The Feet, &c.

Special attention to the care of the feet is essential, as a large amount of perspiration is given off by the sweat glands on the soles of the feet even in the coldest weather. This, together with the scales which collect in the spaces between the toes, must be daily removed by washing, as the feet otherwise rapidly become offensive.

Other parts of the body which require special attention are those parts where perspiration is most active, such as in the armpit and in the groin. The head should be thoroughly washed at least once a week. Washing is best done with soap and water. If the hair be naturally dry, olive-oil should be rubbed in as soon as the hair is dry. The daily use of water upon the head is not to be recommended; too much of the natural oil is washed out, and falling of the hair is likely to result.

A good deal of the soot and dust in the atmosphere of large towns is prevented from reaching the lungs by becoming lodged in the nasal cavities just within the opening of the nostrils. The nose, therefore, performs the useful function of a filter, but, like other kinds of filters, it should be cleansed periodically. It is important that children should be

Hydatid Disease Reminder

AS indicated in the card of instructions accompanying the tablets of an approved remedy for tapeworms in dogs, issued to all dog-owners at the time of dog registration, it is advised that the remedy be given every three months.

If the first dose was given in January the second dose should be given immediately, if this has not already been done.

This reminder is issued by the Department of Health and the Department of Internal Affairs.

taught the proper use of the handkerchief and that they be encouraged at all times to breathe through the nose.

Dirty skin and clothing attract lice. There are two kinds of lice commonly infecting the human body—the head louse (*Pediculus capitis*) and the body louse (*Pediculus corporis*). Both head and body lice are transferred from person to person by close contact or by the wearing of infected caps or clothes The effect of these vermin is made more serious than would at first appear probable, as the intense irritation inflicts much loss of rest and consequent nervous disturbance on the sufferers.

Head lice are best got rid of by cutting the hair very short and thoroughly saturating it with kerosene overnight. This, of course, should not be done near a naked light. Next morning the hair should be washed thoroughly with soft soap and hot water and then combed with a fine-tooth comb. The removal of nits can be assisted by dipping the comb in warm vinegar. Body lice are destroyed if the garments they infest are baked or disinfected by steam heat.

Lack of personal cleanliness predisposes to skin-diseases, such as ringworm, *impetigo contagiosa*, and scabies or itch. Clean people may become infected from close contact with a sufferer. These conditions demand prompt medical treatment.

Care of the Nails.

Nails should be kept short and their cleanliness ensured by a thorough scrubbing with a nail-brush in hot soapy water. Dirty nails often carry infection to the food. Small children, for instance, often reinfect themselves with threadworms by conveying the ova into their mouths from dirt underneath their finger-nails.

Teeth.

Decayed teeth are a potent cause of disease. Teeth should be brushed after each meal if possible, especially the last thing at night. Meals should be ended by food of a cleansing character—*e.g.*, salivary stimulants such as lettuce, celery, apples.

Clothing.

Clothing should be light and loose so that it does not interfere with free body movement. It should be adapted to the climate and seasons of the year. Underclothing should be changed at least once a week. For young children especially, simple garments are desirable, as they are more readily kept in good order. No child is properly clothed who has not a handkerchief; this is a most important article, both for health and cleanliness.

Dirt decreases physical efficiency and takes away self-respect. Cleanliness not only gives bodily comfort and health, but contributes towards a sense of personal dignity, and hence adds greatly to one's power of achievement—it permits one to "live most and serve best."

Robert Louis Stevenson has said: "I am set up at the cross-roads to warn you; and I say unto you, keep well, and I say to you again and again, keep well."

This is the message for all of us, for as a general rule we are responsible for our own health. When we realize this and appreciate the value of health to economic welfare and happiness we shall be more careful to preserve this our greatest asset. In civilized countries a high standard of personal hygiene is an all-important factor in the prevention of ill-health in town or country, in school, shop, or the home.

SUPERANNUATION . . .

"Make it more than 30/- per week," the A.M.P. man advised.

"Adopt our special retirement income plans and guarantee a comfortable old age."

Full death cover from the outset.

Fill in your name and age on the coupon below and post to your nearest A.M.P. office for full particulars.

"A SURE FRIEND IN UNCERTAIN TIMES"

A.M.P. SOCIETY

LARGEST MUTUAL LIFE OFFICE IN THE EMPIRE.
ESTABLISHED 1849 (INCORPORATED IN AUSTRALIA)
HEAD OFFICE FOR NEW ZEALAND
CUSTOMHOUSE QUAY, WELLINGTON - - W. T. IKIN, MANAGER.

Please send me full particulars of the A.M.P. Superannuation Plans.

Name Mr. Mrs. Miss _____

Born _____

Address _____ A.J.

The Farm Home and Kitchen.

Contributed by the Association for Country Education.

Home the Safest Place—*But Is It?*

FALL DOWN STAIRS.

Injuries to his back necessitating his admittance to hospital at 12.30 yesterday afternoon was received by a young man . . . when he fell downstairs at his house . . .

CHILD SCALDED.

Mary . . . , a child residing at . . . was admitted to hospital at 8.30 last night suffering from a scalded left foot as a result of tripping over a kettle of boiling water.

THESE clippings are taken at random from a daily newspaper and yet are typical of hundreds of such notices which appear every year.

Recently we have seen spectacular parades and slogans in a campaign for "Road Safety." It is right that road-users should know the dangers that lurk on the streets, but it is even more necessary that we should realize how many people are accidentally killed, maimed, and injured in and about their homes, so that every one may take steps to prevent such unnecessary suffering and expense.

House accidents have been found to occur most often to women, children, and elderly people, although men are not exempted. Mothers, pre-school children, and old people spend more time at home than do other members of the family, and it is rather ironic that those about whom one can become most sentimental—mother, baby, grandmother, and grandfather—should be the ones exposed to the greatest dangers in what surely should be the safest as well as the "dearest spot on earth"—the home.

Leading Causes.

The leading causes of home accidents are falls, burns and scalds, food and drug poisoning, poisonous gas, mechanical suffocation, and finally a miscellaneous group such as those caused by cutting and piercing instruments, electric currents, firearms, drowning, and household pets.

But the pertinent question is, "How can such accidents be prevented?" For it is surely a self-evident fact that many of them can be prevented.

First let us consider falls. How do they happen?

Highly polished floors, with loose, unanchored mats, children's toys, a broom or a mop left in the middle of the floor or on the stairs, and dark or poorly lighted rooms, halls, and stairs are a few of the most frequent causes; but there are others. Tired and nervous women should especially be cautioned against climbing on chairs, boxes, and tables to hang curtains or pictures, reaching up to high shelves, and climbing up and down stairs with loaded arms.

Make Electricity Safe.

(1) Never run flexible cords under rugs or through doorways. They become worn too quickly.

(2) Never continue to use ragged and worn cords. They may cause short circuits and fire.

(3) Never leave equipment connected when not in use. There is danger of fire when you do.

(4) Never attempt to repair or install electrical equipment yourself. This is a job for the expert.

(5) Never attempt to repair cords when they are "plugged in" to a point. There is danger of an electric shock.

(6) Never touch any electric switch when any part of the body is in contact with water. There is again danger of shock.

(7) Never disconnect equipment by pulling on the cord. This damages connection and cord, which may result in fire or shock.

Matches and Fire.

Playing with matches and fire is the main cause of fatal burns in children. Pulling over utensils containing hot liquids or falling into tubs of boiling water are too often responsible for scalds to infants and toddlers. Surely such things can be forestalled. Matches need never be left within reach of the child too young to understand that they are dangerous playthings, and no homemaker has surely the right to be in too much of a hurry to safeguard a toddler from contact with such dangerous places as the open fire, the hot stove or radiator, or the burning candle or lamp.

Overtiredness, with its attendant mental weariness, is too often the indirect cause of such accidents. How much better, then, to leave a few tasks undone than to be too tired to notice danger in the way?

Here are some questions that should be so constantly in the minds of adults that they are automatic in their answering.

Are matches kept out of reach of children?

Is the fireplace properly guarded?

Are the handles of pots and pans in the stove turned inward?

Are oily rags and such rubbish properly disposed of?

Are inflammable fluids kept away from the fire or flame of any kind?

Are all wooden surfaces planed smooth and free from splinters?

Accidents from Poisoning.

Accidental poisonings are other causes of home fatalities—drugs and poisons carelessly left in reach of inquisitive and venturesome little fingers or where, in an emergency or at night, confused adults may mistake them for something else. If poisons must be kept on hand (and there are some that are household necessities), let them be well labelled " Poison " and kept in a separate shelf out of the reach of toddlers.

Remember, too, that there is truth in the old adage, " It is never too young to learn." Even little folk can be led to understand why certain things must not be handled. Don't be content with just the admonition " Mustn't touch." Explain why.

Children, especially tiny ones, seem to have a fascination for trying to eat anything within reach. Hence the necessity for training ourselves not to leave all sorts of little things lying about on chairs, dressers, and floors.

Accidental deaths caused by cutting and piercing instruments is further too frequent evidence of neglect of ordinary household precautions. Knives, forks, scissors, tins with jagged edges, broken dishes, and glass are all much too dangerous to be allowed to " lie around " the house.

Prevention Better Than Cure.

Prevention is certainly better than cure when it comes to house safety, and the " education " of the family members is one of its first principles.

A house in which every one automatically picks up things dropped on the floor, a home in which poisons are labelled and kept in a special place, a home in which fires are guarded and matches placed out of reach—this is a place of comparative safety. But safer still is the home in which possible accidents are discussed in the family circle and family members are educated to know why not to seek to find a leak in the gas-pipe with the aid of a lighted match and why the electric switch in the bathroom is situated in the roof and not above the wash basin.

After all, why wait to " lock the stable after the horse has been stolen ? "

It is easy to sympathize or to condemn when the accident has occurred in some one else's family, but are we sure that what has happened in that house cannot happen in our own ?

The answer rests with ourselves.

Home Safety ?

In ONE year ONE hospital in ONE New Zealand city reported one hundred and fifty cases admitted as a result of home accidents !

O.K. for Hot Water!

Put a "Starkie" Water Heater behind the Hot taps in your home and enjoy the boon of a copious hot water supply for all requirements throughout the 24 hours of the day!

"Starkie" Heaters are made in capacities and types for every household, also for hotel and restaurant kitchens. They are backed by years of experience and thousands are in use throughout New Zealand.

Starkie WATER HEATERS

"Starkie" is the best-known word in the water heating realm of New Zealand. With a "Starkie" Electric Storage Heater on duty you have the most efficient hot water service. See your Power Authority. Full particulars of the various sizes and types may also be obtained from:—

D. HENRY & COMPANY Ltd.

Sole Manufacturers.

12-14 NELSON STREET :: :: AUCKLAND

Answers to Inquiries.

Recipe for Home-made Soap.

R. M. H. (Whatawhata) :—

Would you kindly publish a good home-made soap recipe containing caustic soda ?

I have been trying a recipe out, but the result is not altogether satisfactory, and I think perhaps the quantities are not quite right.

The following is a good recipe for home-made soap :—

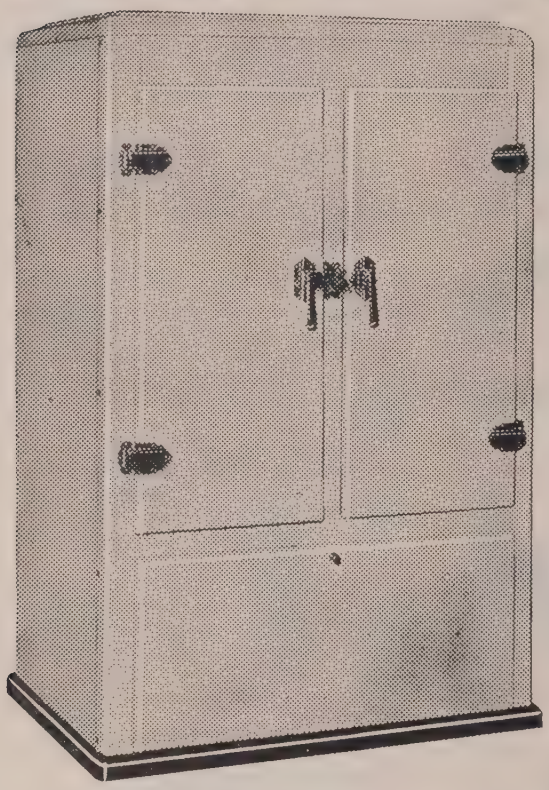
Ingredients.—

Caustic soda	..	1 lb.
Water	..	1½ quarts
Clarified fat	..	6½ lb.

Note.—It is much the wisest plan to use a benzine tin for the soap-pot, for caustic soda will soon ruin any tin or iron household saucepan.

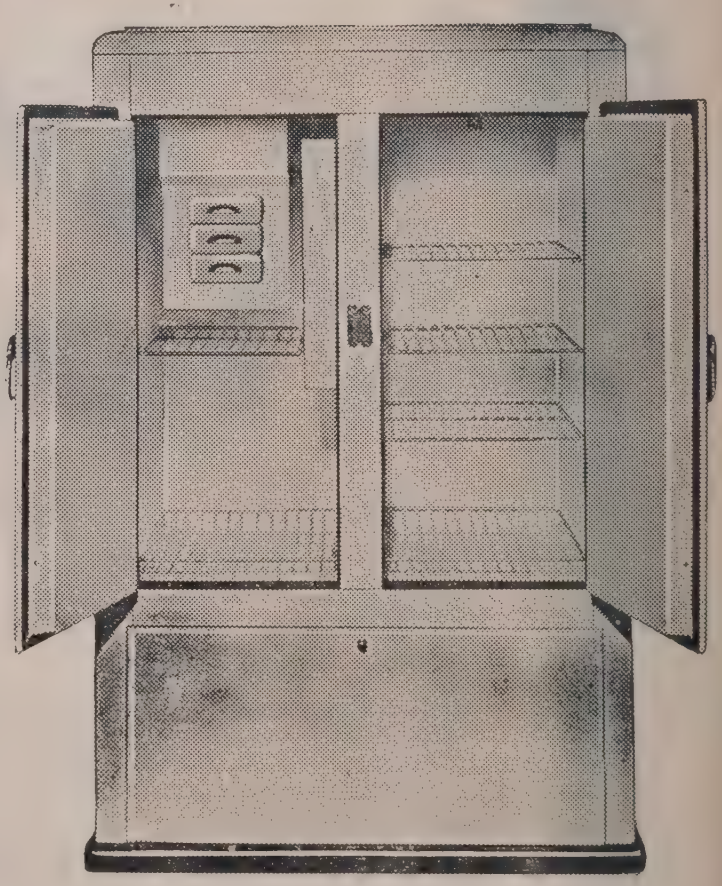
Method.—Clarify the fat by melting it and letting it cook slowly with water. Then let it cool, and the clear fat will solidify on top of the water, leaving behind any salt and dirt. Lift off the fat and remelt it, allowing it to cook slowly until it no longer " crackles." This means that any water left in the fat has evaporated,

FRIGIDAIRE



BUILT SPECIALLY FOR THE NEW ZEALAND FARMER

You need a refrigerator of larger than average size. If you want the finest, most complete refrigerator service available—if you demand the most value for your money in a large refrigerator, then this 16 cubic ft. Frigidaire is the refrigerator you want. It provides to the fullest extent everything in modern up-to-the-minute refrigeration plus remarkable economy of operation.



£97-10-0

COMPLETE

Backed by General Motors with a 12 months guarantee.

Fitted with sturdy ENGLISH Frigidaire refrigeration mechanism of matched design, not just a compromise using adapted household unit.

Lower operating cost. Lower upkeep. Large reserve of power. Long life of trouble-free refrigeration.

SPECIFICATIONS.

Two-door compartment. Panels of special silver-finish steel. Seamless interior. Exterior and interior of high temperature baked Dulux—the finest of all non-porcelain finishes. Food storage 16 cubic ft. Meat Rail. Ice making: 10¼ lb., 72 big ice cubes. Overall dimensions: 5' 3½" high, 3' 6" wide, 2' 7" deep.

Distributed in N.Z. by—

FRIGIDAIRE NEW ZEALAND *DIVISION OF GENERAL MOTORS.*

FRIGIDAIRE DEALERS IN EVERY NEW ZEALAND TOWN.

A Simple Guide to Healthful Meals.

Have Some Food from Each Column in Each Day's Meal.

GROUP 1. Energy-giving Foods.		GROUP II. Body Building.	GROUP III. Body Building and Regulating.			GROUP IV. Body Regulating.	GROUP V. Protective Foods.			
Starches and Sugars.	Fats.	Protein.	Lime or Calcium.	Iron.	Iodine.	Roughage (Laxative).	Vitamin A.	Vitamin B.	Vitamin C.	Vitamin D.
Bread Scones Macaroni Rice Cereals Tapioca Sago Potatoes Beans and peas Sugar Treacle Syrup Honey Preserves Jellies Dried fruit Sweets Cake Biscuits Desserts	Butter Cream Cheese Lard Bacon Margarine Vegetable oils Peanut butter	Milk Eggs Cheese Lean meat Fish Beans Peas Nuts Cereals (a little)	Milk Buttermilk Cheese Cottage cheese Spinach Cabbage Carrots	Liver Spinach Red meat Beans Yolk of egg Bran Whole potatoes Asparagus Whole cereals Green vegetables—*e.g.*, cabbage, celery, &c. Dates Figs Prunes Rhubarb Apricots Apples Oysters	Salt-water fish Salmon Cod-liver oil Oysters Sardines Irish moss Iodized salt Wholemeal products Leafy vegetables Eggs and milk are also relatively rich	Fruit and vegetables Leaf and stem vegetables Root vegetables Fruit, especially if skin eaten Whole cereals Bran	Cod-liver oil Liver Butter Cream Whole milk Cheese Egg yolk Green peas Green beans Spinach Tomatoes Carrot Sweet potato Oysters Lettuce	Yeast Marmite Whole cereals Spinach Cabbage Tomatoes Carrots Peas Beans Vegetables (if water in which cooked is used) Oranges Lemons Peanuts Lettuce	Oranges Lemons Grapefruit Tomatoes Raw cabbage Lettuce Raw milk Rhubarb Raw carrots Apples Potatoes Celery Green vegetables (if cooked quickly and without soda)	Cod-liver oil Butter Egg yolk Sunlight Oysters

SOME GENERAL RULES FOR MEAL PLANNING.

1. Drink sufficient water—six glasses daily.
2. Fresh uncooked vegetables or fruits twice a day.
3. Two vegetables besides potatoes daily.
4. One and a half pints of milk for each child, a pint for each adult, a day.
5. Use plenty of eggs.
6. Make use of cooking-water of vegetables and fruits in soups gravies, desserts, &c.
7. Use some crisp salad foods daily.
8. Avoid an excess of rich foods—*e.g.*, pork and pastry—at one meal.
9. Provide a variety from day to day.
10. Use home-grown seasonable foods if possible.

A larger copy of this chart on stiff cardboard suitable for hanging in the kitchen for quick reference is obtainable from the Association for Country Education, University of Otago, Dunedin.

carrying with it much of the fatty odour. Then strain the fat through fine muslin to make sure that it is clean.

Dissolve 1 lb. of commercial caustic soda in 1½ quarts of water. The liquid will become quite hot. Cool down until it is just warm. Then take 6½ lb. of the warm liquid fat and pour it slowly into the warm caustic lye, stirring with an agate spoon or a stick until it is the consistency of honey.

Line an enamel pan with greased paper or damp calico and pour the soap mixture into it. Cover and leave in a warm place twenty-four hours, when it will be ready to cut up and be stored away to dry. After about a month it will be ready for use.

This is, of course, the simplest kind of soap, and is used for washing dishes and other household purposes; it is the most common type made in the home. Soft soaps are made directly, using caustic potash instead of caustic soda. Because of the difficulty of procuring pure, natural oils and the impossibility of "milling" the soap to produce a fine, smooth product, it is not practicable to attempt to make toilet soaps at home. There are many good brands on the market, and the prices are not prohibitive.

A more complete article on "Soap and Soap-making" will be published in the *Journal* shortly.

Answers to Inquiries.

Readers are invited to submit inquiries on domestic matters for reply by the Association for Country Education. Inquiries should be addressed to the Editor, *Journal of Agriculture*, Department of Agriculture, Wellington.

Mrs. C. H. G. S. (Address indistinct): Meal-planning chart was posted, but may have gone astray. If this is so, please send your address and another will be posted to you.

Table of Contents—April, 1939.

	PAGE
Guarantee Your Autumn-sown Pastures—*R. McGillivray*	289
Dairy Industry Act—*Dairy Division*	295
Augmenting the Farm Water-supply—*P. S. Syme*	298
Careless Handling of Fat Stock—*W. T. Collins*	303
Parasitic Control of Pests—*J. Muggeridge*	305
Creation of a National Asset—*C. Walker*	308
Certified Government Stock Cocksfoot Seed—*A. H. Flay*	313
Rugging of Flock Sheep—*J. E. Duncan*	315
Testing of Purebred Dairy Cows—*W. M. Singleton*	325
Efficient Utilization of Land—*R. P. Connell*	333
Certificate-of-Record Testing—*Dairy Division*	338
Seed-wheat Certification—*Fields Division*	341
Pig Census Returns—*M. J. Scott*	342
Slaughterings of Stock—*Live-stock Division*	342
Importation of Agricultural Seeds—*A. E. Morrison*	343
Bobby Calf Marketing Regulations—*A. E. Morrison*	344
Veterinary Notes—*Live-stock Division*	345
Farm Practice and Management—*Fields Division*	348
Horticultural Instruction—*Horticulture Division*	353
Vegetables, Small Fruits, and Flowers—*Horticulture Division*	356
Apiary Notes—*Horticulture Division*	358
Poultry-keeping Section—*Live-stock Division*	359
Young Farmers' Clubs—*S. Freeman, Editor*	362
Health Notes—*Department of Health*	370
The Farm Home and Kitchen—*Association for Country Education*	372

And Miscellaneous Matter.

COPYRIGHT PROVISIONS AND SUBSCRIPTION RATES.

The articles in the *Journal* of the Department of Agriculture of New Zealand are copyright. Proprietors of newspapers and periodicals wishing to republish any matter are at liberty to do so, *provided both the Journal and author are acknowledged.*

The *Journal* is issued monthly. The subscription, which is payable in advance and includes postage, is 2s. 6d. a year. Subscriptions should be forwarded or paid direct to any office of the Department of Agriculture in the Dominion. Single copies, price 6d., are available from the Department of Agriculture, Private Bag, Wellington.

E. V. PAUL, Government Printer, Wellington.—1939.

[21,000/4/39—2c628

NEW ZEALAND DEPARTMENT OF AGRICULTURE.

Publications Available for General Distribution.

FREE BULLETINS.

10. The Acidimeter and its Use, and the Preparation of Dairy Starters.
69. Testing Milk and Cream for Content of Fat.
51. Onion-culture.
78. Kumara-culture.
84. Orchard-establishment and the Formation of Young Fruit-trees.
90. Daily Variations in Milk-test.
96. Lemon-culture.
100. Apple and Pear Black-spot.
101. Brown-rot of Stone-fruits.
102. Vine-culture under Glass.
109. The Overrun in Buttermaking.
114. Cider-making.
118. The Cleaning of Milking-machines.
119. American Foul-brood and its Treatment.
126. Fodders and Supplementary Forage Crops for Dairy farmers.
131. Hedges and Shelter-trees.
137. Tobacco-culture for Small Growers.
139. The Production and Grading of Cream.
140. Caseous Lymphadenitis in Sheep.
142. Potato-growing in New Zealand.
145. Contagious Abortion in Dairy-cattle.
148. Hogget Mortality and its Prevention.
149. Moulds in Unsalted Butter.
150. Castration of Pigs and Calves.
152. Parturition in Bovines.
154. The Milking Shed.
155. Lucerne on the Farm.
157. The Rabbit Pest and its Control.
161. Control of Orchard Diseases by Spraying.
166. Johne's Disease.
166A. Farm Forestry.

Apiaries Act and its Amendments.

Prospectus of the Ruakura Farm Training College.

NEW BULLETINS.

Facial Eczema in Sheep and Cattle.

Milk-fever and Grass Staggers in Dairy Cows

168. Influence of Salt on the Flavour of Butter.
169. Packing Apples and Pears in Standard Cases.
170. Mole Drainage in the Manawatu.
171. Internal Parasites of Sheep and Calves.
172. Foot-rot in Sheep.

CHARGEABLE BULLETINS.

		s.	d.
66.	Utility-poultry Keeping	1	0
74.	Tomato-culture	0	6
97.	Pigs and their Management	0	6
103.	A Standard Wool-shed for New Zealand Conditions	0	6
120.	Irrigation	1	0
124.	Handling the Wool-clip for Sale	0	6
128.	Beekeeping	1	0
165.	Garden Lawns and Playing-greens	0	6
	New Zealand Seeds for Pastures and Lawns ..	0	6
	Export Butter Boxes and Cheese Crates (extracts from Dairy-produce Regulations 1938) ..	0	6

BOUND HALF-YEARLY VOLUMES of *N.Z. Journal of Agriculture* (with Index): Volumes 3–19; 26, 27; 36–40, 43–54; well bound in green cloth and lettered. Price per volume 4s. 6d., or 5s. postage paid (remittance with orders).

INDEXES to *N.Z. Journal of Agriculture* for Half-yearly Bound Volumes 1; 5; 7–19; 24–40 and 46, 47; 53–54. Free on application.

CONSOLIDATED GENERAL INDEX of *N.Z. Journal of Agriculture*, Volumes I to XX (1910 to 1920). Price 2s. (remittance with order).

Spring-backed covers for *Journal*. Green-cloth boards with name on back. Hold six or more monthly numbers prior to January, 1938. (Not suitable for issues after December, 1937.) Price 2s. 6d. each. New ones (plain black) for enlarged *Journal* since January, 1938. Price 3s. each.

Address applications for any of the above to the Publisher, Department of Agriculture, Wellington, N.Z.

Farmers Welcome THE NEW

"CATERPILLAR"

REGISTERED TRADE MARK

SMALL DIESEL TRACTOR

Model D2

The "D-2" gives far
ample horse-po
coupled with the
nounced economy of
cost savings of 60%
80%. It is a Diesel ba
by "Caterpillar's"
of experience buil
Diesel Engines and T
Type Tractors. Thou
small Tractor, the "D
has the same sure-fo
all-weather traction,
same fully-proven tr
the same accurate bal
of ample weight for w
"CATERPILLAR" D
Tractors are famous
the world over.

ENTHUSIASTIC reports from farmers all over the Dominion speak in glowing terms of the recently introduced Small "Caterpillar" Diesel Tractor. Providing ample power for most agricultural work, this small Diesel Tractor operates with exceptional economy and that pronounced efficiency which is characteristic of "Caterpillar" Diesel Tractors all the world over, no matter the nature of the work for which they are used.

Obtain full particulars of this money-saving Tractor from—

GOUGH, GOUGH & HAMER, LT

Head Office: CHRISTCHURCH.

Branches at AUCKLAND, WELLINGTON, DUNEDIN, PALMERSTON NORTH, MASTERTON
HASTINGS, STRATFORD, ASHBURTON, GISBORNE, GORE.